# An Address
ON
# DILATED STOMACH.

DELIVERED BEFORE THE WORTHING BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

BY

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EFFICIENT treatment requires accurate diagnosis. Accurate diagnosis in a gastric case means the determination of the size, shape, and position of the stomach, the condition of its motor functions with regard to tone, peristalsis, and the rate of evacuation, and lastly, the condition of its secretory functions.

When we think of this long list of requirements and of the comparatively small amount of information given by the ordinary physical methods of examination, we cannot be surprised that diagnosis in gastric diseases is generally much less satisfactory than in thoracic diseases, and that cancer of the stomach is still rarely recognized before it is too late for radical treatment.

I propose first to describe very briefly the causes and symptoms of dilatation of the stomach, then to show in some detail how recent researches on the motor functions of the stomach have made a more accurate diagnosis possible, and finally, to discuss briefly how the information obtained bears upon the treatment of the different forms of dilated stomach.

## I. CAUSES OF DILATED STOMACH.

Dilatation of the stomach may result from (*a*) atony of its muscular coat, and (*b*) obstruction at the pylorus or in the duodenum.

(*a*) *Atony.*—Atony may result from conditions which directly affect the muscular tissue itself, such as prolonged febrile diseases, anaemias, and cachectic conditions. More commonly, however, it is secondary to depression of the central nervous system; this often leads to depression in the peripheral nervous system, upon which the tone of the involuntary muscle of the alimentary canal depends. Consequently neurasthenia, hypochondriasis, and melancholia are common causes of gastric atony, and even in their absence prolonged overwork and depressing emotions may lead to atonic dilatation of the stomach. The atony is increased by the direct effect on the musculature and the nervous system of the malnutrition, which is generally associated with these conditions owing to the accompanying loss of appetite.

(*b*) *Pyloric Obstruction.*—Pyloric obstruction is due in the vast majority of cases to the results of gastric or duodenal ulceration or to cancer. A gastric ulcer situated in close proximity to the pylorus may as a result of the oedema and vascular engorgement at its edges lead to obstruction, which disappears when the ulcer heals. More frequently a permanent obstruction is produced by contraction of the fibrous tissue formed when an ulcer heals. Cancer of the stomach does not commonly arise at the pylorus itself, but in the majority of cases it spreads from the lesser curvature so as finally to involve the pylorus.

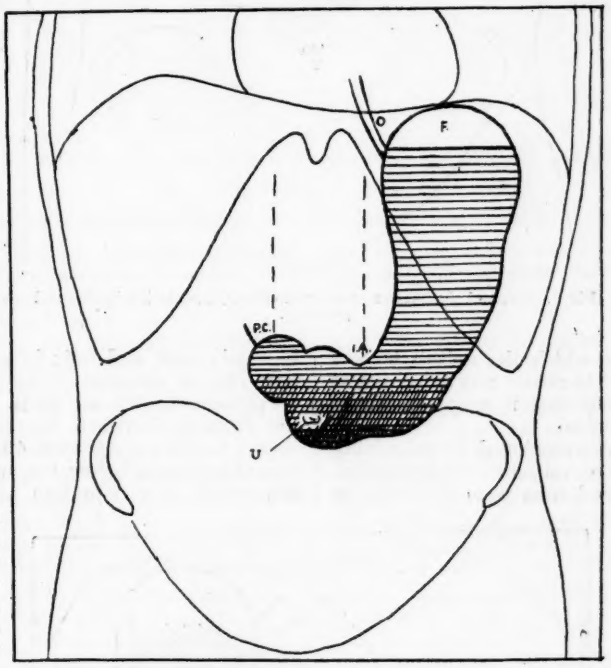


Fig. 1.—Normal stomach, as seen with the *x* rays in the vertical position. O, End of oesophagus; F, fundus of stomach, containing gas; IA, incisura angularis; P C, pyloric canal; U, umbilicus.

Spasm is often stated to give rise to pyloric obstruction, but the evidence that it can do so is inconclusive, except, perhaps, in the hypertrophic pyloric stenosis of infants. External pressure very rarely gives rise to pyloric obstruction, and simple adhesions between the pylorus and the neighbouring viscera do not, as a rule, interfere with the passage of food into the duodenum. Gastroptosis cannot by itself lead to pyloric obstruction, as any kink which it might produce would be in the duodenum at the point where it becomes fixed, the pylorus being sufficiently mobile to drop with the rest of the stomach when the erect posture is assumed. Such a kink in the duodenum only causes obstruction in very exceptional cases, any dilatation in a dropped stomach being generally due to coexisting atony.

## II. SYMPTOMS OF DILATED STOMACH.

(*a*) *Atonic Dilatation.*—In atonic dilatation of the stomach the chief complaint is an uncomfortable sensation of fullness coming on during or immediately after a meal. This leads to a progressive diminution in the amount of food taken by the patient, who hopes thereby to diminish his discomfort, but actually increases the atony by starving his nervous and muscular tissues. In uncomplicated cases pain is never present and vomiting is very infrequent.

(*b*) *Pyloric Obstruction.*—In dilated stomach due to pyloric obstruction, in addition to the sensation of fullness, attacks of severe pain are frequently brought on by the violent peristalsis, which occurs at varying intervals after meals in the attempt of the stomach to overcome the obstruction. Vomiting is a frequent symptom in severe cases; it may occur before breakfast, and articles of food may be brought up which have been eaten many hours or even days before. Wasting is progressive and the tissues become abnormally dry and inelastic; the patient has generally little appetite, but complains of great thirst. The urine is scanty and obstinate constipation occurs.

It is now known that auto-intoxication from the absorption of poisons retained in a dilated stomach is extremely uncommon, tetany, which is a rare complication in severe cases of pyloric obstruction, being the only example of this.

In addition to the symptoms already enumerated others depending upon the cause of the obstruction, such as gastric ulcer or carcinoma, are, of course, also present.

## III. INVESTIGATION OF THE MOTOR FUNCTIONS OF THE STOMACH.

(*a*) *Size, Shape, and Position.*—The *x* rays have shown that the normal shape and position of the stomach differs considerably from the classical descriptions, which were derived from what was found *post mortem* and during operations. Under the latter conditions the tonic contraction of the stomach is, as a rule, almost completely relaxed, and as soon as the abdominal wall is opened the intra-abdominal pressure, which is the chief factor in keeping the viscera in position, falls to that of the atmosphere.

The *fundus* is the part of the stomach which lies above the cardiac orifice; in the vertical position the *body* is of nearly uniform width, and is situated entirely to the left of the middle line, being either vertical or inclined slightly towards the left (Fig. 1). Its separation from the *pyloric part* of the stomach is indefinite, but can usually be

recognized with the *x* rays in the lesser curvature at the *incisura angularis*. The pyloric part of the stomach consists of the *pyloric vestibule*, which is directed upwards and slightly backwards as it turns to the right, and the *pyloric canal*—a definite tubular portion, nearly an inch long, which makes a sharp angle with the pyloric vestibule as it passes backwards. In the vertical position the greater curvature almost invariably reaches below the umbilicus; it rises 2 or 3 inches when the horizontal position is assumed (Fig. 2).

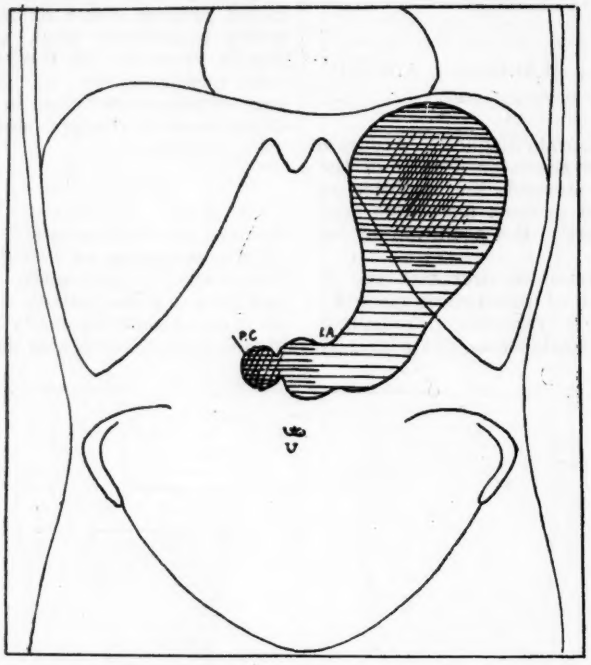


Fig. 2.—Normal stomach, as seen with the *x* rays in the horizontal position.

*Inspection* of the abdomen may reveal the outline of the stomach in patients with very thin abdominal muscles, especially if pyloric obstruction has led to excessive activity of peristalsis. *Palpation* under similar circumstances enables us to feel the lower border of the stomach, and occasionally even in normal individuals a part of it can be recognized. These methods of examination are, however, of very limited application, and with palpation it is often difficult to distinguish with certainty between the stomach and the transverse colon.

When the gastric contents can be splashed with unusual ease on abdominal palpation, or on shaking the patient, it may be possible to determine the approximate size and position of the stomach from the area in which the splash is best heard, but it is often impossible to obtain any splashing at all, and it should be remembered that it may sometimes be produced in the transverse colon.

*Percussion*, although frequently employed in examining the abdomen, can in reality give very little information. The empty stomach is a collapsed tube with its walls in contact with each other, except at the fundus, which contains gas. The latter gives a resonant note, but the note over the greater part of the organ is quite indistinguishable from that over the surrounding viscera. After food has been taken the gas contained in the stomach still gives a resonant note, but the area thus marked out is small in comparison with the total size of the stomach (Fig. 3). Thus percussion may give some idea as to the quantity of gas in the stomach, but it cannot possibly help in the determination of its size, shape, or position.

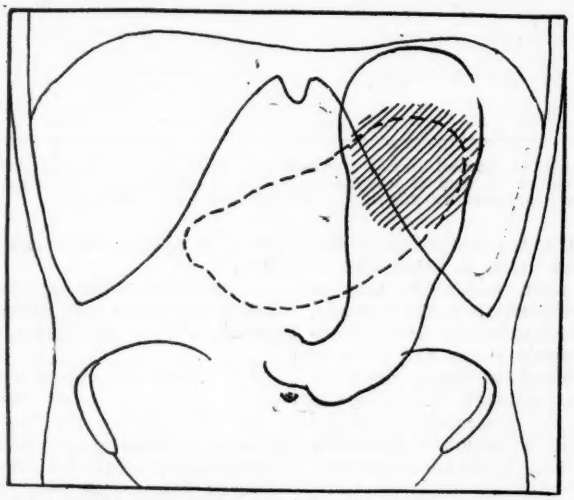

Fig. 3.—Comparison of the results obtained in outlining the stomach in the horizontal position with the *x* rays (continuous outline), auscultatory percussion (dotted outline), and simple percussion (shaded area).

In recent years *auscultatory percussion and friction* have often been used with the object of mapping out the stomach; the stethoscope is placed over a point which is known to lie within the gastric area, and the abdomen is percussed in different directions from the stethoscope until a change in note is heard. A very definite outline is by this means obtained, which often approximately corresponds with what was formerly supposed to be the area occupied by the stomach. Investigations with the *x* rays have, however, shown that these methods are quite valueless. On numerous occasions I have marked out the supposed position of the stomach by auscultatory percussion and friction after a bismuth meal had been given. I have obtained a definite outline, which was identical with that obtained at the same time by other observers, several of whom had, like myself, previously made frequent use of the methods. I have then placed a metal wire over the outline; on looking at the abdomen with the *x* rays it was found that in no case did the area marked out by the wire show any resemblance to the true shape of the stomach (Fig. 3). Often the "stomach" marked out by these methods barely overlapped the position it really occupied. Why such definite areas can be marked out by these methods I do not know, but any one who will take the trouble to compare them with the true outline of the stomach, as determined by the *x* rays, will convince himself of the futility of auscultatory percussion and friction.

*Inflation of the stomach with gas* is an exceedingly valuable method. The stomach being empty, the patient drinks in rapid succession two quantities of 4 oz. of water, in which are dissolved respectively 1½ drachms of sodium bicarbonate and 1½ drachms of tartaric acid. The carbon dioxide evolved distends the stomach in such a way that it can often be easily seen and felt; in every case its size and position can be determined by percussion, as sufficient gas is present to fill all parts of the stomach. Normally the distance between the lesser and greater curvature should not be greater than 4 in., and the greater curvature should not reach below the umbilicus. Dilatation and an abnormally low situation of the stomach can thus be readily recognized. This method, however, has the drawback that it can only be used in a horizontal position, as the gas is immediately eructated on sitting up. It is, therefore, frequently impossible to recognize the presence of ptosis, as in the majority of cases this is only present when a vertical position is assumed. Very little information can be obtained as to the shape of the stomach, as inflation with gas produces considerable distortion, the shape assumed by the stomach when rapidly distended with gas being quite different to its natural shape when slowly filled with food. The method is also contraindicated when a gastric ulcer may be present, owing to the danger of perforation; this is a serious disadvantage, as ulceration frequently leads to pyloric obstruction, hour-glass constriction, and irregularities in the gastric outline, due to adhesions.

*X Rays.*—The size, shape, and position of the stomach can be readily and accurately determined, both in the vertical and horizontal position, by means of the *x* rays after a meal of porridge or bread and milk containing 2 oz. of bismuth oxychloride has been given. There is

no possibility of error in determining the shape of the stomach, although, of course, mistakes may be made in the interpretation of unusual appearances. By palpation during the screen examination, the mobility of the stomach can be investigated and the presence of adhesions recognized.

(*b*) *Tone.*—The normal stomach adapts itself to the volume of its contents in such a way that the intragastric pressure remains steadily between 4 and 6 mm. of mercury, whether it is full or almost empty. The chief factor in this mechanism is the gradual relaxation of the tonic contraction of the fibres of its muscular coat. In atonic dilatation this adaptation is incomplete or absent, the stomach acting as a more or less passive sac, which does not contract upon its contents, the food dropping into the most dependent part of the organ.

*Splashing* and *succussion* give useful information concerning the tone of the stomach under certain definite conditions alone, as in many normal individuals splashing may occur in the stomach after an ordinary meal. If, however, two ounces of water are sipped when the stomach is empty and splashing can then be produced by palpation it may be concluded that atony is present. Normally the stomach contracts upon the fluid in such a way that all the air contained in it is pushed into the fundus, where it gives rise to a resonant note obtained on percussion over Traube's space—the area bounded on the right by the heart and left lobe of the liver, on the left by the spleen, and below by the costal margin, and merging above into the pulmonary resonance. When the stomach is atonic the body and pyloric part does not contract upon the fluid, which forms a layer over the back of the whole of the stomach, the gas being spread over the front so that a resonant note is obtained below the costal margin; the resonance may extend as far down as the umbilicus and even be absent from Traube's area. Under these conditions the part of the stomach which is below the costal margin contains both gas and fluid, and consequently splashing is produced on palpation.

*Inflation.*—When the stomach is inflated with carbon dioxide in the manner already described, the degree of gastric tone may be estimated with a considerable amount of accuracy, 1½ drachms of sodium bicarbonate yielding with 1½ drachms of tartaric acid 1,700 c.cm. of carbonic dioxide at the body temperature and at atmospheric pressure. The normal stomach when rapidly filled has a volume varying between 600 and 1,200 c.cm.; 1,700 c.cm. of gas will therefore be subjected to a considerable degree of tension when set free in the normal stomach, which can be readily felt as a hard tumour with a definite outline; it is generally visible, and can always be accurately mapped out by percussion. A good deal of discomfort is produced, and on sitting up the gas is eructated with considerable force. On the other hand, when the tone of the stomach is deficient, and its capacity even when empty is greater than 1,700 c.cm., it will not be tightly distended; it forms is therefore softer, and its outline is less easy to determine with accuracy by palpation and percussion. No discomfort is produced; sometimes, indeed, the patient experiences a feeling of relief after the inflation. On sitting up there is less desire to eructate the gas, and it is brought up with more difficulty and less force.

More accurate information can be obtained as to the degree of atony by inflating the stomach through a tube by means of a syringe of known capacity, the amount of air required to give rise to slight discomfort being estimated by the number of times the syringe has to be emptied. When, therefore, a stomach tube has to be passed for other reasons, inflation can be carried out by this method instead of with carbon dioxide.

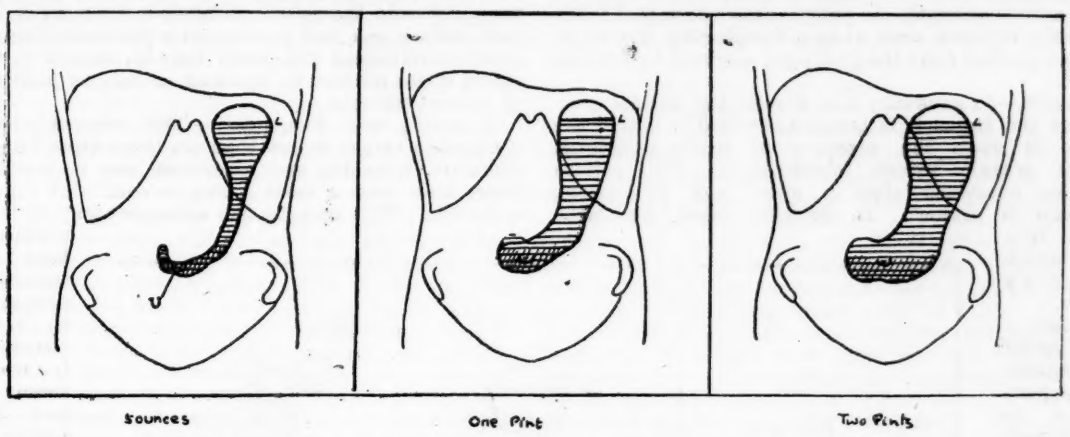


Fig. 4.—Gradual filling of a normal stomach. U, Umbilicus; L, upper limit of gastric contents.

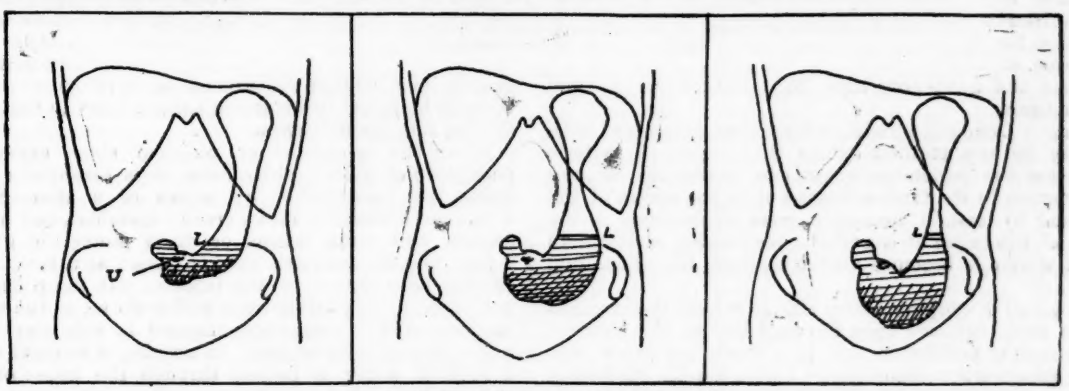


Fig. 5.—Gradual filling of an atonic stomach.

*X Rays.*—Owing to the adaptation of the stomach to the volume of its contents, it is found on examining the stomach in the erect position with the *x* rays that there is little difference in the upper level of its semi-fluid contents whether their volume be 5 oz. or 2 pints, and the greater curvature is very little depressed as the stomach is gradually filled (Fig. 4). When the stomach is atonic this adaptation to the volume of its contents does not occur; the food is seen to drop to the most dependent part, its upper level slowly rising and the greater curvature becoming more dependent as the volume of its contents increases (Fig. 5)

(*c*) *Peristalsis.*—The *x* rays have shown that normal

peristalsis begins immediately after the food is taken, each peristaltic wave starting as a constriction near the middle of the body of the stomach. It deepens as it slowly progresses towards the pylorus, until about 1 in. from the entrance of the pyloric canal it reaches such a depth that part of the pyloric vestibule becomes almost completely separated from the rest of the stomach. The part thus cut off then diminishes in size in every direction, some of its contents being from the first forced through the pyloric canal into the duodenum, the remainder being forced back as an axial reflux stream into the stomach (Fig. 6).

Deficient peristalsis may occur in association with atony, but it is rarely well marked, and in the majority of cases of atonic dilatation of the stomach, peristalsis is seen to be of normal strength. In pyloric obstruction peristalsis is unusually vigorous, even when a considerable degree of atony has resulted from the prolonged stasis of food in the stomach.

*Inspection.*—In unusually thin women the normal peristalsis of the stomach is occasionally visible, but in the majority of cases the presence of visible peristalsis indicates organic pyloric obstruction. The patient should be examined after a meal, and, if possible, when pain is present. In doubtful cases peristalsis can be rendered more obvious by massage.

*Palpation.*—At a period preceding that in which peristalsis is visible it may often be felt if the hand is kept for some minutes gently pressing upon the right side of the abdomen a little above the umbilicus. A periodic hardening can be recognized, during which the hand is raised. It is important to keep the hand in position for some time, as otherwise the hardening may be mistaken for a rigid rectus muscle.

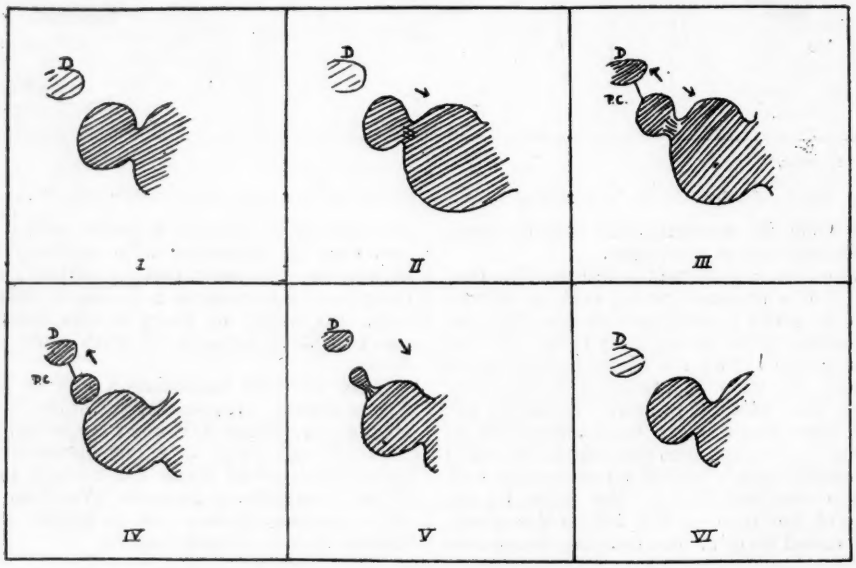


Fig. 6.—Successive stages of normal peristalsis in the pyloric vestibule. D, Duodenum; P.C., pyloric canal.

*X Rays.*—Deficient peristalsis cannot be recognized with certainty by any method except the *x* rays. In pyloric obstruction the peristaltic waves can sometimes be seen to commence in the fundus instead of in the centre of the body, and to lead to unusually great depressions in the outline of the organ at a period considerably earlier than that in which it becomes visible through the abdominal wall.

(*d*) *Rate of Emptying.*—The rate at which the stomach empties itself depends upon the condition of the pylorus, the strength of peristalsis, and, to a much less extent, the tone of the gastric musculature. Under normal conditions the stomach is empty about two hours after a light breakfast and about four hours after an ordinary dinner. If pyloric obstruction slowly develops, hypertrophy of the muscular coat of the stomach occurs, and the increased strength of peristalsis is at first able to cope with the increasing difficulty of evacuation. A time at last comes when compensation is incomplete, and a certain amount of stasis occurs. This steadily increases as the obstruction progresses, and the stagnating food gives rise to catarrh of the mucous membrane and atony of the muscular coat and consequently to dilatation of the stomach, although peristalsis continues to be more vigorous than under normal conditions. The sequence of events is strictly comparable to the dilatation of the left ventricle, which occurs when its hypertrophy becomes insufficient to deal with a progressive aortic stenosis.

As peristalsis is entirely independent of tone, uncomplicated atony has comparatively little effect on the rate of emptying of the stomach. The gastric contents begin to pass into the duodenum immediately after their entry into the stomach, and evacuation continues at the normal rate. It is only in advanced cases of atony that more than the last traces of the food remain abnormally long in the stomach; the terminal stasis which occurs even in slight cases is due to the fact that the gastric tone does not increase *pari passu* as its contents are reduced in quantity, so that the residue remains in the most dependent portion of the body of the stomach, and does not reach the pyloric part at all. When lying on the right side the pyloric vestibule is the most dependent part of the organ, and consequently the food collects in it; however advanced the atony may be, there is very little stasis if this position be assumed, so long as peristalsis is of normal strength.

*Splashing and Succussion.*—The stomach should be completely empty in less than six hours after dinner. If, therefore, splashing and succussion can be elicited six hours after such a meal, it may be concluded that stasis is present. This may be due either to atony (if the erect position has been maintained), feeble peristalsis, or pyloric obstruction. If, however, these signs are present twelve hours after dinner—at 9 a.m., for example, if dinner was taken at 9 p.m.—organic pyloric obstruction is almost certainly present. An important exception is ulceration in the neighbourhood of the pylorus, which may cause a continuous secretion of gastric juice, so that the stomach is never empty, although there is no pyloric obstruction and no delay in the passage of food into the duodenum.

When the symptoms or physical signs suggest the possibility of pyloric obstruction, it is essential to investigate the case further by means of a stomach tube. A dinner containing meat, green vegetables, and potatoes, sweets, and some raisins or dried plums, is given at 9 p.m., and the stomach tube is passed at 9 a.m., nothing having been taken in the interval. If the patient does not involuntarily strain he is told to do so, as the stomach can generally be completely emptied in this way without any siphonage or pumping. If nothing is brought up, half a pint of water is poured through the tube; on again straining this is brought up together with any traces of gastric contents which were insufficient to be expelled alone. In atonic dilatation the stomach is always empty twelve hours after a meal. In chronic gastritis, especially when due to alcohol, a small quantity of thick alkaline fluid, consisting mainly of mucus and often bile-stained, may be present. In the continuous secretion which results from an ulcer near the pylorus even in the absence of obstruction, a small quantity of very acid fluid without any food residue is found. When an ulcer has led to organic obstruction, starch granules and vegetable débris, but no meat fibres, are present, in addition to some acid fluid; the quantity of the latter is much increased if the ulcer is still active, as hypersecretion then occurs in addition to stasis.

When the obstruction is due to cancer, the gastric contents are of thicker consistence and contain débris of both vegetable and animal food; free hydrochloric acid is absent, "active" hydrochloric acid is greatly reduced in quantity, and lactic acid is present.

The *x* rays give much less information than the stomach tube as to the rate of evacuation. Well marked obstruction can be recognized by the contrast between the unusually small quantity of bismuth which enters the duodenum and the very active peristalsis. The time required for complete evacuation cannot be accurately determined; on the one hand a little bismuth frequently sticks to the mucous membrane long after the rest of the meal has left the stomach, especially when the mucous membrane is covered with mucus as a result of catarrh. I have also known the mistake made of allowing the patient to take another meal before the last examination; in that case the remaining bismuth is mixed with the new food, and consequently its final disappearance does not take place until the whole of this later meal has left the stomach. On the other hand there may be a mild degree of obstruction, in which all the finely divided food and bismuth pass into the intestine, although larger particles, such as raisins or insufficiently chewed pieces of meat, are retained.

### IV. Treatment of Dilated Stomach.

(*a*) *Atonic Dilatation.*—The most important part of the treatment of atonic dilatation is to ensure a proper amount of *rest* in the recumbent position. This is very valuable for the depressed nervous system, and it also diminishes the quantity of food required to maintain metabolic equilibrium, and so permits weight to be gained even if no additional food is taken. Moreover it places the atonic stomach in a position of mechanical advantage. This is particularly true if the patient lies on the right side, the *x* rays having shown, as I have already pointed out, that this is the position in which an atonic stomach empties itself most rapidly. The patient should lie down as soon as the meal is finished, but sit up during the meal itself, as otherwise the food may stagnate and undergo fermentation in the dilated fundus, and not reach the pyloric vestibule at all until the next meal is taken. In slight cases it is only necessary for the patient to lie down for an hour after each meal; in advanced cases he should remain in bed all day until the tone of the stomach has improved.

An ordinary mixed diet should be given, but the bulk of the meals should be as small as is compatible with the provision of a proper amount of nourishment, and no fluids should be drunk during meals. The *x* rays have shown that water taken on an empty stomach runs straight out into the duodenum, but mixes with any food which may be present if taken during or after meals, and only leaves slowly with the more finely divided part of the food. Consequently it is best to take the fluids when the stomach is empty. A glass of water may be taken on rising in the morning, a glass of milk or some broth or beef tea at 11.30, if breakfast is at 8 30 and lunch at 1; one or two cups of tea at 5 p.m., and a glass of milk last thing at night. Carbohydrates need not be restricted in uncomplicated cases of atony, but when there is any catarrh the quantity of sweet and starchy foods, which are liable to undergo fermentation in the stomach, should be reduced.

Abdominal *massage* is often very useful. If an *x*-ray examination has been made in the horizontal position the exact localization of the stomach will be known and consequently massage can be applied directly to the organ. If this precaution is not taken the massage may almost completely miss the stomach. I have on a number of occasions allowed the masseur to give his first treatment under the *x* rays after a bismuth meal, as he can then find where and how he can best massage the stomach itself. The treatment should be given every morning an hour after breakfast, when the stomach is nearly empty, the duration of the treatment being gradually increased from ten minutes to half an hour.

*Electricity* is of comparatively little value. My experiments have shown that faradism is without action on the alimentary canal; a tonic contraction, however, occurs in the whole area underneath an electrode during the passage of a galvanic current, a greater effect being produced by the anode than the kathode, but the contraction is probably only slight with the maximum current the patient can tolerate, except in very thin individuals. If, therefore, there are facilities for electrical treatment, the large kathode should be placed on the back and a smaller anode is moved slowly over the gastric area. As strong a current as the patient can bear with comfort should be used, and the treatment may be given for ten minutes after the massage.

It is doubtful whether *drugs* such as strychnine and ergot have any effect upon the tone of the stomach. The former, however, is often of use, as it improves the appetite and thus helps to overcome the malnutrition so often present. It may be combined with dilute hydrochloric acid, particularly if there is any deficiency in the gastric secretion, and with a bitter such as gentian, which stimulates the appetite and consequently increases the psychical secretion of gastric juice. When an aperient is required on account of constipation, which cannot be overcome by other means, a drug such as aloes is most useful, as it probably has a stimulating action on the gastric musculature analogous to that which it exerts on the colon.

In uncomplicated cases *lavage* is likely to do more harm than good. In severe cases complicated by catarrh lavage with plain water may be of use; the addition of antiseptics is unnecessary and likely to increase the catarrh; and it has been shown experimentally that sodium bicarbonate, which is commonly supposed to dissolve the mucus, does not do so under the existing conditions. The tube should be passed last thing at night, and the patient should try to evacuate any gastric contents through the tube before water is poured down. Not more than half a pint should be poured into the stomach, as larger quantities tend to increase the atony by the rapid distension they produce. It is rarely necessary to repeat the lavage with more than two successive half pints, and frequently the first half pint is sufficient. When there is much malnutrition, half a pint of milk containing some concentrated protein food may be drunk after the lavage.

*Gastro-enterostomy is strongly contraindicated.* The bad results following the performance of this operation in the absence of organic disease of the stomach and duodenum have been responsible for the unfortunate disinclination on the part of some medical men to recommend it in cases in which it is really indicated.

(*b*) *Pyloric Obstruction.*—The treatment of pyloric obstruction is gastro-enterostomy. In well-marked cases it is useless to waste time by lavage or other medical treatment, as the improvement which follows operation is immediate and progressive. Only when the patient is already so emaciated that doubts are raised as to whether he is strong enough to undergo an operation, is it justifiable to try by lavage, by the administration of saline solution by the rectum, and by giving frequent small and concentrated feeds to improve his condition before the operation is performed. By this means a considerable gain in weight may occur, which is due particularly to the absorption of fluid, and the gastric atony may diminish, and so increase the probability of a successful result of the operation. The patient should be weighed every day, and it should be clearly understood that no delay is permissible unless the weight is steadily increasing; if there is no gain in weight the operation should be performed in spite of the risk.

When the obstruction is only partial and an active ulcer is present, it is sometimes worth while trying the effect of medical treatment, as the obstruction is largely due to the surrounding inflammation, which disappears when the ulcer heals, and if the ulcer is not very large the scar produced may give rise to no obstruction. I have seen such cases recover completely without operation.

The most striking example of the disappearance of obstructive symptoms was a man of 50, who had suffered for twenty-two years from typical symptoms of duodenal ulcer. His stomach was dilated and there was visible peristalsis. For business reasons he had to postpone the operation, which I advised, for four months, during which he was carefully dieted and treated with oil and alkalis. He lost his pain and the dilatation and visible peristalsis disappeared, but on account of the long history I still thought an operation advisable. Mr. Rowlands operated and found a number of definite scars on the outer surface of the duodenum, but the ulcers had completely healed and there was now no obstruction, although four months earlier at least one ulcer must have been active and the thickening round it sufficient to produce well-marked obstruction.

The treatment of such cases should be that of ordinary gastric ulcer, the use of olive oil being of particularly great

value, as it causes relaxation of the pylorus in addition to inhibiting the secretion of the gastric juice. As there is certain to be more or less continuous gastric secretion, the stomach should be washed out with an alkaline solution every evening. If the symptoms do not disappear after four weeks, or if they recur in spite of careful dieting, an operation should be advised.

## PREVALENT RAIN-BEARING WINDS AND THE MILK SUPPLY OF MANCHESTER DURING THE YEARS 1896-1909.

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In the spring of last year Professor Delépine of Manchester read before the Royal Society of Medicine a very valuable and interesting paper dealing chiefly with the distribution of bovine tuberculous mastitis amongst the farms supplying Manchester with milk. 1,524 farms scattered over an area of nearly 5,000 square miles were carefully investigated and mapped, and it was found that remarkable differences in the prevalence of the disease existed between different districts. Professor Delépine endeavoured to use these differences in prevalence to demonstrate a relation between local incidence of tuberculous mastitis and local state of cowsheds and herds, a relation which, if possible to prove, is obviously of profound importance.

There can be nothing but admiration, in considering this paper, for the way in which the available facts have been collected and arranged, for the great time, labour and skill expended on them, and, not least, for the frank indication of the unavoidable limitations of the material. But with all these in view, seeing the importance of the subject and the apparent magnitude of the opportunity, one cannot but deplore that the result attained fell so far short of being conclusive. While presenting considerable evidence of the influence of what may be called "farm management" in determining a higher or lower degree of prevalence of the disorder, Professor Delépine found himself unable to escape from the embarrassment of some other influence or influences which were unknown to him.

In quoting the following passages from his paper I hope he will not consider I have in any way misrepresented his conclusions. I have lettered the first two paragraphs (A) and (B) respectively for convenience of reference further on. The lettering and figures in the text here and throughout this paper refer to his maps in the *Proceedings of the Royal Society of Medicine*.[1]

(A) It would appear from this that in every respect the shippons which were found to produce tuberculous milk were worse than the others [worse as regards the state of the cowsheds and herds]. But if instead of comparing the averages only one compares in each group the state of the tuberculous and non-tuberculous farms in various latitudinal zones, it becomes evident that the averages do not convey the whole truth, for if the non-tuberculous farms situated south of Manchester (Group A, Division XX to XXXI) are compared with the tuberculous farms also situated south of Manchester, one finds that the tuberculous farms in Zone III to XIX, XX to XXI and XXII, are really more satisfactory than the non-tuberculous farms in Zone XX to XXXI, and that it is only south of Zone XXII that the tuberculous farms are worse in every respect than the non-tuberculous farms (not including the Manchester farms).

(B) Another unexpected fact is obvious. Of the five divisions of tuberculous farms, the one corresponding to Zones XXIII and XXIV is undoubtedly the worst, while Division III to XIX is distinctly the best; but notwithstanding the considerable differences indicated in the table, the number of cows with tuberculous udders per cent. of the total number of cows is about the same in all the zones. The same may be said of the cows suspected of disease of the udder; there are slight differences, but these do not correspond in the least with the condition of the farms in the respective zones. I do not think that the differences in these percentages should be taken to indicate important differences in the incidence of tuberculosis, as they may possibly be affected by the more frequent inspection of the proximal farms, which would almost certainly lead to the discovery of some few cases overlooked in the first visits.

It is, however, clear that the condition of the farm, though important, is not the dominant factor, and this makes it necessary to believe in the existence of some cause capable of overpowering the most favourable conditions, and practically independent of the most influential predisposing factors, to account for the focal distribution of cases of tuberculous mastitis.

A careful consideration of the statistical facts recorded in this paper and of facts which I have observed in connexion with a number of farms that I have been able to study closely has led me to the conclusion that cows in a state of advanced tuberculosis, and *emitting discharges loaded with tubercle bacilli*, constitute the chief factor determining the distribution of bovine tuberculosis.[2]

Reviewing these statements and the facts recorded in his paper, it is evident that Professor Delépine is correct in thinking that some other influence (or influences) which he had not taken into account had interfered with his result, preventing him from demonstrating the relation, which he has otherwise made so probable, between farm management and the prevalence of bovine tuberculous mastitis. His assumption, however, that this influence is that of "cows in a state of advanced tuberculosis, and emitting discharges loaded with tubercle bacilli," cannot be admitted, so far as the distribution of disease *amongst the whole number of farms (tuberculous and non-tuberculous)* is concerned.

Such discharges may, it is true, account for the fact that *within the different groups of tuberculous farms*—that is, amongst farms where advanced cases are generally present (since cows with tuberculous mastitis "are, in the majority of cases, suffering also from more or less advanced tuberculosis of other organs")[3]—no sanitary measures short of the removal of these cases appeared to make much difference in the percentage of cows suffering from tuberculous mastitis; and we may conclude, with Professor Delépine, that this reasonable explanation meets the difficulty raised in his paragraph which I have lettered (B). But it is impossible so to explain away the difficulties referred to in paragraph A, or to account for the *distribution of tuberculous farms amongst the whole number of farms*. Professor Delépine himself tells us[4] that "although infection from farm to farm is not impossible, it is not of common occurrence." Besides, even if one admitted the assumption to be a possible truth—which cannot be done—it would only move the question a step further back to, "What, then, accounts for the distribution of these advanced cases in the whole area?"

The fact is that Professor Delépine has not taken into account, as a possible factor in the problem, a most powerful influence affecting the prevalence of tuberculosis—one to which, during the past ten years, I have repeatedly called attention—namely, the influence of strong prevalent rain-bearing winds. These winds, I have shown over and over again, have a most remarkable power of increasing the mortality from human tuberculosis of the lungs in localities exposed to them, and, as I have more lately indicated, of similarly increasing the mortality from other forms of human tuberculosis.[5] It is not unreasonable to suppose that they may similarly influence the distribution of bovine tuberculosis, though this has not hitherto been suggested. Dr. Delépine's maps afford a unique opportunity of ascertaining whether they do so or not. I propose to show that they do, and that the "cause capable of overpowering the most favourable conditions," which he found to be interfering with his conclusions, was just this influence of wind (possibly together with others which are as yet unknown); also that when steps are taken to prevent the interference of wind exposure with the other investigation, the relation between prevalence of tuberculous mastitis and farm management seems (if I rightly understand and interpret his figures and statements) to become capable of proof.

Before undertaking the detailed examination of the topography of so wide an area it is obviously necessary to inquire into the nature of the available material, in order to ascertain how far satisfactory conclusions may be based upon it; so that it is in no carping spirit that I review the limitations of the very valuable facts which Professor Delépine has presented.

In the first place, the farms indicated are, in many districts, only a few of the milk-supplying farms in those districts, and it might be alleged that these relatively few farms cannot be regarded as representative of their districts. But seeing that they are selected simply because they supply Manchester with milk, and for no other reason, I take it that they may reasonably be regarded as representative of their surroundings, provided a considerable number are grouped together. Dr. Delépine has evidently taken this view.

Again, farms remote from Manchester have apparently

been less often inspected than farms nearer to it, and so the remoter farms may seem freer from tuberculosis than is really the case. There is no escaping from this possibility, and the only means of avoiding error from it is to constantly bear it in mind. Dr. Delépine draws attention to it, but evidently considers any error produced by it will be inconsiderable.

Further, in the maps supplied in the *Proceedings* it has been found impossible, it is stated, to ensure entire accuracy "in square mile areas where farms were numerous." But by tracing out Professor Delépine's mile and four mile squares on Bartholomew's excellent reduced Ordnance Survey Maps (half an inch to the mile, with colours to indicate heights), I believe I have been able to identify the situation of his farms with at least enough certainty to draw the conclusions which follow.

It has also to be remembered that the artificial reduction, so to speak, of the tuberculosis in the farms by removal of infected cattle must tend to reduce the contrasts created by natural predisposing influences. About Manchester itself, especially, this is likely to be the case where the farms are more fully under control, and where so much has evidently been done by the sanitary authorities to reduce the amount of the disease.

Lastly, when one comes to discuss together the influences of wind exposure and of farm management, as only a general idea of the positions of the 385 farms used by Professor Delépine is given in the investigation of the effects of the latter, it will be seen to be impossible to come to any positive conclusion, except that his proposition, whilst extremely probable, still remains to be proved.

In short, it seems to me there is, in Professor Delépine's paper and maps, material provided of a very valuable kind for the investigation of the relation between strong, prevalent rain-bearing winds and the distribution of bovine tuberculous mastitis. To that investigation I will first address myself.

Afterwards, should such a relation be clearly shown to exist, it should be possible, when the masking effect of such an influence is avoided, to show that the relation between bovine tuberculous mastitis and farm management may thereby be made easier to examine.

Incidentally, it will be necessary to consider what possible influences may be exercised by soil and altitude.

### Influence of Prevalent Rain-bearing Winds.

The area discussed in Dr. Delépine's paper is divided by the Pennine Chain into a western region of flat or undulating country reaching from North Lancashire into North Shropshire, and an eastern region of hills and valleys stretching across into Yorkshire, Derbyshire, and Staffordshire.

The western region is swept freely by the prevalent rain-bearing winds of this country—the south-west, west, and north-west—down, at all events, to nearly the latitude of Chester (Zone XXII), where the Welsh mountains begin to afford some shelter from the west and south west winds, and to give, about the latitude of Ellesmere (Zone XXVIII), some shelter also from the north-west.

The eastern region, on the other hand, is predominantly a region of shelter from all these winds, most of the farms lying in valleys which afford pretty effectual protection. It must not, however, be supposed that all of these farms are thus protected; some stand high in apparently wind-swept situations. The contrast, therefore, between the eastern and the western regions as regards such shelter and exposure is not absolute but relative, yet is evidently so pronounced as to afford a very valuable opportunity for investigating the relation between prevalence of bovine tuberculous mastitis and exposure to these winds.

The comparison between shelter and exposure may be best made by dividing the whole area into districts, which I shall now proceed to describe, indicating in each instance not merely its exposure or shelter in respect of westerly winds, but also its geological structure and elevation; for both of these latter factors require to be taken into account—the first because it does actually sometimes affect the frequency of tuberculosis, at all events in man; the second because it is popularly supposed to do so.

*C to G, IX to XIII.*—This district contains the few farms which lie out on the flats of Lancashire in the Zones IX to XIII; they stand on a slightly undulating surface of upper and lower trias (Keuper marl, raised beach and Bunter sandstone) at an elevation of only from about 20 to 100 feet above sea level except a single farm rather higher. There are only 13 of them, and one was tuberculous, giving a percentage of 15.4. Their fewness, their distance from Manchester, and the fact of their slight elevation not exposing them very much to the wind, as well as the comparatively pervious soil, makes these difficult to lay stress on.

*I to L, IX to XIII.*—The hill farms of Zones IX to XIII are included in this district. Most of them are in Ribbledale, from which the hills must block out west and north-west winds considerably, and whose kink near its entrance probably shuts out much of the south-west; other farms lie in even more sheltered situations. They stand at heights varying from about 150 to 750 feet, often on steep slopes, on a soil chiefly composed of the Yoredale series of rocks, a few, however, resting on millstone grit or on coal-measures. Most, I imagine, can be classed as sheltered. Out of 66, only 7, or 10.6 per cent., were found to be tuberculous.

*Zones XIV to XVII.*—Almost all the farms in these zones cluster in and about North Manchester, at elevations of about from 20 to 500 feet—mostly between 200 and 400 feet—in situations exposed for the most part to westerly winds. They nearly all lie on coal-measures, but there are a few on millstone grit or on trias. Amongst 101 only 15, or 14.8 per cent., were found to be tuberculous. It must, however, be remembered that Dr. Delépine points out that the farms in and round Manchester are exceptional in the control exercised over them and the great improvements effected by the sanitary authorities. The lowness of these figures may, therefore, be reasonably attributed to those improvements. At all events, the suspicion that it may be so attributable cannot be put aside. To this I shall refer again presently.

*C to M, XVIII and XIX.*—The majority of these farms also are grouped in and round Manchester, this time on its southern side. The majority are on trias, at elevations of about from 70 to 300 feet. There are 77 of them, and 15 were found tuberculous—that is, 19.4 per cent. It is possible that these farms also have been improved by the care of the sanitary authorities of Manchester, and, but for that, might have shown a higher percentage of tuberculous disease.

Both of these two last districts, being close to the public health authorities, have doubtless been several times inspected, and probably present their true percentage of tuberculosis.

*N to P, XVIII and XIX.*—This district contains a small group of sheltered farms (most of them, at all events, are sheltered) lying amongst the hills between Stockport and Glossop on coal-measures, at heights varying from about 350 to 800 feet. There are 24 of them, and 3 were tuberculous, or 12.5 per cent. Not being far from Manchester, this low figure is probably not due to infrequent inspection.

*C to H, XXII to XXIV.*—The slopes of Delamere Forest afford an interesting comparison. The forest forms a ridge with a general elevation of about 400 ft. running from NNW. to SSE., and at least 18 miles away from the northern commencement of the Welsh mountains, which there rise to about 1,200 to 1,300 feet. The forest affords protection from west and south-west winds to farms on its eastern side, but practically none from north-west winds.

On its westerly slope (G, XXII to XXIV, except one farm in G, XXII, which is clearly on the eastern side), there are 50 farms, of which 20, or 40 per cent., were found tuberculous; and west again of these, in perhaps a rather less exposed situation (E and F, XXII and XXIII), 20 farms had 7 tuberculous, or 35 per cent., 4 of these 7 being on a mound rather higher than the majority of the rest.

On the easterly side of the forest, on the other hand (H, XXII to XXIV, with the single farm taken, as above, from G, XXII), out of 19 farms only 3, or 15.8 per cent., were tuberculous.

The heights of these farms in this area vary from about 30 to 400 feet. Those on the west of Delamere Forest are mostly on lower trias, those on the east of it on upper trias. Those on the east are certainly more elevated than those on the west, and it is possible that the very high percentages to the west of the forest were partly due to dampness of subsoil close to the river Gowy, but this will not entirely explain the facts, since many of the tuberculous farms were well above the river.

*I to M, XX to XXIV.*—This is a 20 mile square lying south of Manchester, consisting of undulating country, low round river beds on the west, but eastwards rising to a height of about 500 feet towards Macclesfield and Congleton. It is generally very exposed, except in its westerly lower lands and in its south-eastern corner; the subsoil is practically all of upper trias; 520 farms here showed 144 tuberculous, or 27.6 per cent.

It is also instructive to compare the five constituent north to south divisions of this area, I, J, K, L, M. In the most westerly, I, the least exposed, the percentage was 15.7; in the next two, J and K, well exposed to west, south-west, and north-west, 31.1 per cent. and 30.6 per cent. respectively, but in the two most easterly, L and M, the percentage fell to 27.1 and 27.6; in M, at all events, a good many of the farms were in shelter at its southern extremity. Being close to Manchester, it is possible that this area has been unusually often inspected, which may have somewhat raised the figures.

In striking contrast to this specially exposed area are the much more sheltered areas across the hills eastwards.

*N to P, XX to XXII.*—Behind Macclesfield and about Chapel-en-le-Frith, mostly well sheltered in high hills at elevations varying apparently from about 500 to 1,000 feet, lie 169 farms, on soil chiefly composed of Yoredale rocks, but also a good deal on coal-measures and millstone grit. Of these 169 only 24, or 14.2 per cent., were tuberculous. These are no further from Manchester than the last, and there is therefore no reason to suspect the figures of being unduly low from want of inspection. The following, however, are further off, and hence may have been less often inspected, and thus present unduly low percentages.

*N to P, XXIII to XXVI.*—Round Leek in Staffordshire, also mostly in shelter, at heights apparently varying about from 400 to 1,000 feet, on soil chiefly and about equally composed of coal-measures and Yoredale rocks, but also partly of millstone grit and lower trias, there are 144 farms, with only 21, or 14.5 per cent., tuberculous.

*Q to S, XX to XXII.*—Even more remarkable is a group of 43 farms near Bakewell, which at elevations apparently of about 400 to 1,000 feet, almost wholly on Yoredale rocks and in marked shelter, only showed 5 tuberculous, or 11.6 per cent.

*Q to S, XXIII to XXVI.*—South of Bakewell, at heights probably varying from 300 to 1,000 feet, and also practically wholly on Yoredale rocks, 172 farms gave 29 infected farms, or 16.8 per cent. Most of these farms are in shelter, but some are evidently in very wind-swept places.

*C to M, XXV to XXVII.*—Crossing the hills westwards again, an area open mostly to the north-west, but less exposed than the areas directly north of it to the west and south-west winds (since it is more under the lee of the Welsh mountains), has 97 farms, with 21, or 21.6 per cent., tuberculous. These farms lie almost all on upper or lower trias, at elevations of about 150 to 300 feet.

*C to M, XXVIII to XXXI.*—Still further south and still more under the shelter of Wales lies a district which, being more undulating, is also more self-sheltering. Here, of 40 farms standing at elevations of about 200 to 300 feet, almost all on upper and lower trias, 6 were found tuberculous, or 15 per cent.

*N to O, XXVII to XXX.*—Lastly, once more passing eastwards over the hills, a small, well-sheltered group of 19 farms, south of Cheadle, at elevations of about 300 to 500 feet, and practically all placed on upper trias, showed only a single farm, or 5.2 per cent., infected.

It is well to observe that a few farms round Uttoxeter, at lower levels on upper trias, just east of this last group, were very tuberculous, but they are in most cases clearly placed in less sheltered situations. Their presence, however, serves to indicate that the more remoteness of this district need not be held to account—wholly, at all events—for its low percentage.

To make clearer the very remarkable contrast presented by the more exposed and more sheltered districts just described, I have constructed first Table I, which, without taking into consideration any modifying circumstances, compares all the districts on the west of the Pennine Chain with all those in its sheltering valleys. The percentages of the farms found tuberculous in the western region are generally considerably greater than in the eastern, and the aggregate figures present a striking contrast.

Table II strengthens this contrast by comparing the western and eastern figures *at corresponding latitudes.* Here Zone XIV to XVII is only omitted because it contains no sheltered district to compare with the exposed.

Amongst the districts in Table I are, however, included two districts which I have referred to as doubtful, namely, those including Manchester and its immediate neighbourhood where special measures have been taken to reduce the frequency of tuberculosis, namely, XIV to XVII and C to M, XVIII and XIX.

Another district, C to M, XXVIII to XXXI, which is probably considerably sheltered, as I have indicated, not only by the mountains of Wales, but by its own undulations, is also

TABLE I.—GENERAL COMPARISON OF THE WESTERN REGION WITH THE EASTERN.

| District. | Soil. | Approximate Elevation. | Total No. of Farms. | No. found Tuberculous. | Percentage. |
|---|---|---|---|---|---|
| | | | *Western.* | | |
| | | Feet. | | | |
| C to G, IX to XIII ... ... | Trias | 20-100 | 13 | 1 | 15.4 |
| XIV to XVII ... ... | Coal-measures | 20-500 | 101 | 15 | 14.8 |
| C to M, XVIII to XIX ... | Trias | 70-300 | 77 | 15 | 19.4 |
| C to F, XXII and XXIII ... | Trias | 30-100 | 20 | 7 | 35.0 |
| G, XXII to XXIV ... ... | Trias | 78-450 | 50 | 20 | 40.0 |
| H, XXII to XXIV ... ... | Trias | 70-400 | 19 | 3 | 15.8 |
| I to M, XX to XXIV ... ... | Trias | 66-550 | 520 | 144 | 27.6 |
| C to M, XXV to XXVII ... | Trias | 150-400 | 97 | 21 | 21.6 |
| C to M, XXVIII to XXXI ... | Trias | 200-300 | 40 | 6 | 15.0 |
| Totals ... ... ... | — | — | 937 | 232 | — |
| Average ... ... | — | — | — | — | 24.7 |
| | | | *Eastern.* | | |
| I to L, IX to XIII ... ... | Yoredale | 150-750 | 66 | 7 | 10.6 |
| N to P, XVIII and XIX ... | Coal-measures | 350-800 | 24 | 3 | 12.5 |
| N to P, XX to XXII ... ... | Yoredale, Coal-measures, Millstone grit | 500-1,000 | 169 | 24 | 14.2 |
| N to P, XXIII to XXVI ... | Yoredale, Coal-measures, Some trias, and millstone grit | 400-1,000 | 144 | 21 | 14.3 |
| N O, XXVII to XXXI ... ... | Trias | 300-500 | 19 | 1 | 5.2 |
| Q to S, XX to XXII ... ... | Yoredale | 400-1,000 | 43 | 5 | 11.6 |
| Q to S, XXIII to XXVI ... | Yoredale | 300-1,000 | 172 | 29 | 16.8 |
| Totals ... ... ... | — | — | 637 | 90 | — |
| Average ... ... | — | — | — | — | 14.1 |

TABLE II.—COMPARING PERCENTAGES OF WESTERN AND EASTERN REGIONS AT CORRESPONDING LATITUDES.

| *Western.* | | *Eastern.* | |
|---|---|---|---|
| District. | Percentage. | District. | Percentage. |
| IX to XIII, C to G ... | 15.4 | IX to XIII, I to L ... | 10.6 |
| XVIII and XIX, C to M | 19.4 | XVIII and XIX, N to P | 12.5 |
| XX to XXIV, C to F ... | 35.0 | XX to XXII, N to P... | 14.2 |
| XX to XXIV, G ... | 40.0 | XX to XXII, Q to S... | 11.6 |
| XX to XXIV, H ... | 15.8 | XXIII to XXVI, N to P | 14.3 |
| XX to XXIV, I to M ... | 27.6 | XXIII to XXVI, Q to S | 16.8 |
| XXV to XXVII, C to M | 21.6 | | |
| XXVIII to XXXI, C to M | 15.0 | XXVII to XXXI, N, O | 5.2 |

included amongst those which are exposed; and so is district H XXII to XXIV, which, as has been seen, is only exposed to the north-west. Omitting these four districts one obtains Table III, where the more exposed districts

TABLE III.—TABLE I WITH DOUBTFUL DISTRICTS OMITTED.

| District. | Soil. | Approximate Elevation. | Total No. of Farms. | No. found Tuberculous. | Percentage. |
|---|---|---|---|---|---|
| | *Western.* | | | | |
| C to G, IX to XIII ... ... | Trias | Feet. 20-100 | 13 | 1 | 15.4 |
| C to F, XXII and XXIII ... | Trias | 30-100 | 20 | 7 | 35.0 |
| G, XXII to XXIV ... ... | Trias | 78-450 | 50 | 20 | 40.0 |
| I to M, XX to XXIV ... ... | Trias | 66-550 | 520 | 144 | 27.6 |
| C to M, XXV to XXVII ... | Trias | 150-400 | 97 | 21 | 21.6 |
| Totals ... ... ... | — | — | 700 | 193 | — |
| Average ... ... | — | — | — | — | 27.5 |
| | *Eastern.* | | | | |
| The same as in Table I ... | — | — | 637 | 90 | 14.1 |

are seen to have nearly twice the percentage of tuberculous farms that the more sheltered districts have.

But even this striking contrast does not show the full measure of the difference between exposure and shelter. Table IV gives the comparison between 52 fully exposed

TABLE IV.—COMPARISON OF EVIDENTLY WELL-EXPOSED WITH EVIDENTLY WELL-SHELTERED FARMS OVER 300 FEET HIGH.

| District. | Soil. | Approximate Elevation. | Total No. of Farms. | No. found Tuberculous. | Percentage. |
|---|---|---|---|---|---|
| *Exposed.* | | Feet. | | | |
| In M, XX to XXIV ... ... | Trias | 400-550 | 52 | 20 | 38.4 |
| *Sheltered.* | | | | | |
| In Q to S, XX to XXVI ... | Yoredale | 300-1,000 | 82 | 7* | 8.5 |
| In N, O, XXVII to XXX† ... | Trias | 300-500 | 19 | 1 | 5.2 |

* Of the 7 tuberculous 5 were over 600 feet high.
† The farms in this district, though few, are more comparable in soil and elevation.

farms just west of Macclesfield on high ground fronting the west, and 82 farms evidently very well protected in the valleys between Buxton and Warksworth. Here the exposed district shows a percentage of tuberculous farms more than four times as great as does the sheltered!

But, it will be asked, have soil and altitude nothing to do with the origin of these differences?

### THE INFLUENCE OF SOIL.

I have elsewhere shown that the influence of soil on the prevalence of human phthisis is decidedly less powerful than the influence of prevalent rainy winds. For the present inquiry there is not sufficient material to enable one to decide on the part it plays in determining the incidence of bovine tuberculous mastitis. *For that purpose soils must be compared in shelter*, and, as the great majority of the sheltered farms in this area are on Yoredale rocks only, it seems undesirable to found conclusions on the comparatively few placed on other formations. Yet it is worth noticing that N, O, XXVII to XXXI, is the only sheltered district standing on trias, and that it has the lowest percentage of tuberculous farms.

On the other hand, it may be confidently stated that soil has nothing to do with creating the marked differences between the more exposed and the more sheltered districts, for almost all the exposed districts are on trias, which I find is often associated in England with relatively low human phthisis mortality, whereas most of the sheltered districts are on Yoredale rocks, which seem often associated with relatively high human phthisis death-rates in this country. In fact, it is not impossible that soil here tends to lessen the contrast created by rain-bearing wind.

### THE INFLUENCE OF ALTITUDE.

I have shown elsewhere that there is no valid evidence in favour of any influence of altitude *per se* on the *prevalence* of human phthisis, and the only effect I can trace from it in this country is an apparent increase of the effects of wind exposure in elevated situations.

Table V will, I imagine, deter those who are not acquainted with my work from assigning to altitude here any very important rôle.

TABLE V.—COMPARISON OF ALTITUDES, WESTERN AND EASTERN SEPARATELY, OMITTING THE DOUBTFUL DISTRICTS.

| *Western.* | | *Eastern.* | |
|---|---|---|---|
| Altitude in Feet. | Percentage as above. | Altitude in Feet. | Percentage as above. |
| 20—100 ... ... ... | 15.4 | 300— 500 ... ... | 5.2 |
| 30—100 ... ... ... | 35.0 | 150— 750 ... ... | 10.6 |
| 78—450 ... ... ... | 40.0 | 350— 800 ... ... | 12.5 |
| 150—400 ... ... ... | 21.6 | 300—1,000 ... ... | 16.8 |
| 66—550 ... ... ... | 27.6 | 400—1,000 ... ... | 14.3 and 11.6 |
| | | 500—1,000 ... ... | 14.2 |

There can, in fine, I submit, be no reasonable doubt—assuming, as we must, that Dr. Delépine's published maps are not wholly devoid of value—that amongst the farms here indicated during the years 1896 to 1909, exposure to the prevalent rain-bearing winds tended powerfully to increase the prevalence of bovine tuberculous mastitis.

### THE INFLUENCE OF FARM MANAGEMENT.

This brings me to the consideration of the difficulties which have unfortunately hampered Professor Delépine in his research.

In view of the powerful influence of wind exposure which I have just shown to exist, it is obviously no longer admissible to compare together districts of quite different conditions as regards wind exposure in order to trace a connexion between farm management and bovine tuberculosis. Dr. Delépine, in the paragraph I quoted and marked B at the beginning of this paper, has, as I have already pointed out, satisfactorily explained one apparent contradiction. But, in the paragraph which I marked A, his real difficulty has arisen from comparing together zones of quite different exposure conditions. Difficulties so created are of no final importance; and, were one aware of the exact location of the 385 farms he used for his investigation, it is *possible* one could at once establish the fact of the influence of farm management by the *comparison of farms in shelter*; or, failing this comparison which is the safest method to pursue, by comparison of farms in comparable situations as regards wind exposure and shelter. I say "possible" because, as I have already pointed out, without knowing the precise position of these farms one can draw no certain conclusions.

It is worth noticing that the farms in and about Manchester afford a marked contrast between the sanitary conditions presented by the tuberculous and the non-tuberculous; also that south of Zone XXII—that is, where a large proportion of the farms begin to be in shelter—the relation between farm management and tuberculosis is stated to come out distinctly.

In view of the great probability that the relation between bovine tuberculosis and farm management is a real and intimate one and of the great importance of actually showing it to be so, it would seem worth while to reconsider the subject on the lines which I have just ventured to suggest. It only remains to thank Professor Delépine for having afforded me, by his valuable paper, a unique opportunity of examining the effect of these winds on a form of bovine tuberculosis, and to congratulate Manchester on its public health administration.

REFERENCES.

[1] *Proc. Roy. Soc. Med.*, vol. iii, No. 7, May, 1910, Epidemiological Section, pp. 224 and 227. [2] Pages 238 and 239. [3] Page 219. [4] Page 253. [5] *The Influence of Strong, Prevalent, Rain-bearing Winds on the Prevalence of Phthisis*, 1910.

# THE DIAGNOSIS OF THE COMMONER CAUSES OF CHRONIC JAUNDICE.*

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Since jaundice is due to obstruction of the free flow of bile into the intestine, it is only a symptom, and, if a successful line of treatment is to be followed, it is necessary that the nature and situation of the obstruction should be diagnosed as speedily and accurately as possible.

Two principal types of jaundice are met with: (1) Those in which there is gross and frank blocking of the larger bile ducts, without abnormal blood destruction; (2) those in which the obstruction is due to an increase in the viscidity of the bile in the smaller ducts, and in which there is a pathological destruction of red blood cells. In the first group the obstruction may be due to: (*a*) Mechanical blocking of the lumen of the ducts by gall stones, malignant growths, or stricture, or by an inflammatory swelling of the mucous membrane or lymphoid tissue at the duodenal outlet; (*b*) to compression of the ducts from without by swellings of the pancreas, enlarged lymph glands in the portal fissure, lesions of the stomach, duodenum, kidney, etc., or by pressure from an aneurysm of the aorta, hepatic or mesenteric arteries, and other rarer causes, such as uterine tumours, etc. In the second, or toxaemic, group the jaundice occurs as an incidental complication in the course of an infectious disease such as pyaemia, septicaemia, relapsing fever, pneumonia, scarlet fever, epidemic jaundice, Weil's disease, acute yellow atrophy, or as the result of the action of certain poisons or drugs such as phosphorus, toluylendiamene, snake poison, chloroform, chloral, acetanilide, santonin, arseniuretted hydrogen, aniline, copper sulphate, mushrooms, etc.

More than four-fifths of all cases of jaundice met with in ordinary practice belong to the first group, the obstruction to the bile flow being of an obvious mechanical character, the most common causes, in my experience, being biliary calculi and malignant disease of the pancreas. On classifying 400 cases of jaundice that I have had the opportunity of investigating during the past five years, I find that in 46 per cent. it was due to the former cause, and in 28 per cent. to the latter, so that in nearly 70 per cent. of my cases the diagnosis lay between gall stones and malignant disease of the pancreas. Catarrhal jaundice was diagnosed in 15 per cent. of my cases, a growth of the bile ducts or gall bladder in 3 per cent.; cirrhosis of the head of the pancreas, without gall stones, in 4 per cent.; cirrhosis of the liver in 4 per cent., secondary growths in the liver 3 per cent., and in 2 per cent. the jaundice depended upon rarer causes, such as stricture of the duct, etc. In 93.5 per cent. of the gall-stone cases the calculi were found in the common bile duct at operation, and in 6.5 per cent. they were only present in the gall bladder or cystic duct, the jaundice in the latter being apparently due to an associated cholangitis. I may remind you in passing that gall stones may be present in the common bile duct without producing jaundice, and that unless this is borne in mind, the symptoms to which they give rise may be attributed to the wrong cause, notably to "indigestion." In 32 per cent. of my cases of common duct cholelithiasis there was no jaundice, and in several of these the symptoms had culminated in glycosuria, owing to the long continued irritation of the pancreas, which had been allowed to progress unrecognized and unrelieved.

In many instances the history of the case is suggestive of the cause of the obstruction. A sense of weight or distension in the upper part of the abdomen, generally coming on a short time after meals, which is relieved by eructation or vomiting, and is often noticed to be particularly liable to succeed indulgence in certain articles of diet, a gnawing feeling below the ensiform cartilage, a catch in the breath or an acute stabbing pain under the right costal margin on deep inspiration, a feeling of chilliness, or even a slight rigor, are among the prodromal symptoms of cholelithiasis. It will be noted how easily these may be attributed to "indigestion." In such cases the jaundice will have generally appeared suddenly. It may have been preceded or accompanied by paroxysmal attacks of pain starting in the right hypochondrium or in the epigastrium, radiating thence over the abdomen and through to the right scapular region, but in practice typical gall-stone colic is a comparatively rare symptom. If the intensity of the jaundice fluctuates, deepening after each paroxysm of pain and diminishing in the intervals, if there is fever and there are ague-like attacks, gall-stone obstruction is highly probable. Jaundice coming on painlessly, insidiously, and persistently, without intermission, in a previously healthy individual, with no history of abdominal or digestive symptoms, persistent loss of flesh, and marked failure of strength, are suggestive of growth. The character of the jaundice is often indicative of the nature of the obstruction. In all forms of icterus the bile pigment in the tissues is at first in solution, but after a considerable amount has accumulated it may be deposited in a granular form. The deposits of bilirubin then undergo slow oxidation, the colour changing from yellow to an olive or dirty greyish-green, hence the skin appears of a dark green or slate colour, the so-called "black jaundice." Since the obstruction of the bile ducts is more complete and persistent in malignant disease of the pancreas than when it is due to gall stones, "black" jaundice is suggestive of the blocking of the common bile duct by a growth.

Examination of the abdomen will frequently reveal tenderness and rigidity of the right rectus muscle after an attack of gall-stone colic, but distension of the gall bladder is usually absent. A distended gall bladder with jaundice is usually dependent upon malignant disease of the head of the pancreas or common bile duct. Dilatation of the gall bladder may, however, be occasionally due to impacted gall stones in the common duct, but in such cases the distension is as a rule of short duration, since the inflammatory softening of the walls of the duct ultimately allows the passage of the retained mucus and bile, whereas in malignant disease the gall bladder steadily enlarges as the jaundice intensifies. A stone impacted in the cystic duct, stricture of the duct, acute inflammation of the gall bladder, or chronic inflammation of the head of the pancreas, when there is also a stone in the common duct, or a stone in the cystic duct pressing on the common duct, may give rise to a distended gall bladder with jaundice. On the other hand, when the gall bladder has been more or less completely obliterated by previous attacks of inflammation or is congenitally absent, distension cannot occur when the common bile duct is obstructed by a malignant growth. Enlargement of the liver as the result of the biliary stasis is frequently to be made out. In gall-stone cases the liver has a smooth surface and varies in size and tenderness with the intensity of the jaundice. In obstruction due to growth it is often enlarged and may be tender, but the size does not vary. If the surface is irregular and nodular and there is also free fluid in the abdomen and oedema of the feet, advanced cancer of the head of the pancreas is indicated. The presence of small angiomata in the skin, particularly of the abdomen, is a point in favour of cancer. An oblong swelling, due to the enlarged pancreas, can sometimes be felt on deep pressure in the lower epigastric region, especially when the patient is under an anaesthetic. This may be due to malignant disease of the gland, but is more commonly an inflammatory swelling. If the former, it is hard, irregular, and painless; if the latter, it is often not so hard, is smooth, and is generally painful. Chronic pancreatitis is frequently accompanied by attacks of pain resembling those due to gall stones, but the pain in such cases radiates to the left side and is often more severe under the left shoulder blade or in the mid-scapular region.

In cases where there is a characteristic history, and the signs and symptoms are typical, a satisfactory diagnosis may be made from the clinical conditions alone, particularly when the presence of gall stones is indicated, but a diagnosis of malignant disease must always be made with caution, for there are not a few cases in which the clinical evidence points to carcinoma of the pancreas, in which the jaundice is in reality due to an inflammatory swelling of the head of the gland, with or without an associated gall-stone obstruction. It is practically impossible to distinguish by clinical methods alone between cancer of the head of the pancreas and growths of the common bile duct or ampulla of Vater. But in many cases of chronic jaundice

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the history is either unreliable or not characteristic and the symptoms are conflicting or confusing. In such doubtful and difficult cases, great assistance in arriving at a reliable opinion may be obtained by a thorough investigation of the digestive and metabolic disturbances revealed by an analysis of the urine and faeces.

Before considering the results and indications yielded by such investigations, it is advisable that we should briefly consider the anatomy and pathology of the common bile duct and its related structures, for unless these are thoroughly appreciated the significance of the chemical changes met with in jaundice due to various causes is not always clear. Commencing at the junction of the cystic and hepatic ducts, the common bile duct courses along the free border of the lesser omentum with the portal vein and hepatic artery; it then passes behind the first part of the duodenum, the portal vein lying to its inner side and the inferior vena cava behind. These sections of the duct are known as the supraduodenal and the retroduodenal portions respectively. The duct now comes into relation with the pancreas, to which it is closely applied, being completely surrounded by pancreatic tissue in about 68 per cent. of cases, and lying in a groove in the posterior surface of the gland in the remaining 32 per cent. The anatomical relations of this, the pancreatic portion of the common duct, are of considerable importance since pathological conditions within the duct are liable to involve the pancreas, and conversely swellings of the head of the pancreas may cause obstruction of the duct, particularly in those instances where the duct passes through the substance of the gland. In its fourth, intraparietal, or interstitial portion the common bile duct enters the wall of the second part of the duodenum, the muscular layers of which it traverses. Beneath the mucous membrane it dilates into a small reservoir known as the ampulla of Vater. The main pancreatic duct, or duct of Wirsung, usually opens into the ampulla of Vater distal to the common bile duct but separated from it by a small transverse fold of mucous membrane. The ampulla communicates with the duodenum by a small round or elliptical orifice, situated about 3 or 4 inches from the pylorus. This aperture is the narrowest part of the bile duct, and it is here that gall stones which have successfully negotiated the common bile duct are apt to lodge and cause the sudden onset of jaundice which is so characteristic. If the stone is large enough to fill the ampulla of Vater it will also occlude the pancreatic duct, preventing the entry of the pancreatic ferments into the intestine and bringing about a catarrhal pancreatitis from the back pressure, and subsequent infection of the retained secretions. The average length of the ampulla is about one-sixth of an inch, and it is usually about one-fifth to one-sixth of an inch in breadth, but it is liable to considerable variation, occasionally being nearly half an inch long. A small stone impacted in the duodenal orifice may not entirely fill the cavity of an unusually large ampulla, and the bile and pancreatic ducts may thus be converted into a continuous channel. Such a condition has been described by Opie, and he has demonstrated that the passage of bile into the pancreatic duct, which is possible in such a case, may bring about acute inflammation of the pancreas. Subsequently Flexner showed that if the bile is modified by a diminution of its salts, or an increase in its colloidal elements, such as occurs in chronic inflammatory conditions of the bile passages, chronic pancreatitis results.

The accessory pancreatic duct, or duct of Santorini, opens in the duodenum about three-quarters of an inch above the bile papilla. Since the accessory duct anastomoses with the main duct within the pancreas in about 90 per cent. of cases, it has been assumed that it may act as a safety valve, and prevent the effects of back-pressure when the duct of Wirsung is obstructed, but as the duodenal orifice of the accessory duct is obliterated, or markedly constricted in about 50 per cent. of cases, it is probable that in at least that proportion it cannot assume the functions of the main duct; moreover, the duct of Santorini may itself be compressed by moderate-sized gall stones in their passage through the pancreatic portion of the common bile duct.

The mechanical view, and even the chemical explanation of Opie and Flexner, of the relation between gall stones and pancreatitis only partly accounts for the pathology of these conditions in my opinion. In both the action of micro-organisms on the damaged tissues is not taken into account. In some instances I believe that the affections are primarily microbic, the disease of the bile channels and pancreas arising from invasion of these structures by intestinal organisms, which in the case of the pancreas activate the pancreatic secretion and set up autolytic changes. Normally the entry of micro-organisms into the duct of Wirsung is prevented by the flow of the secretion and the presence of valve-like folds in the walls of the diverticulum of Vater, but if the passage of bile and pancreatic juice is interfered with, and the valves are obliterated or damaged, organisms may find their way directly from the duodenum into the ducts. If from any cause, such as an intestinal catarrh, the virulence and number of the intestinal bacteria are increased, an inflammatory condition of the bile and pancreatic ducts is apt to follow, originating in the one case cholangitis and gall stone formation and in the other chronic pancreatitis.

In the 50 per cent. or so of cases where the accessory pancreatic duct is patent a more open route for the infection of the pancreatic ducts, and through them of the bile ducts, exists, for there are no valves at the entrance to the duct of Santorini, and, according to Desjardins, the secretion may flow indifferently from the pancreas to the intestine or from the intestine to the gland. Organisms carried in from the duodenum by a reverse current will be conveyed through the head of the pancreas to the point where the ducts of Santorini and Wirsung anastomose, and there, meeting with the direct current from the main duct, be carried into the ampulla of Vater, to pass into the intestine again, or along the common bile duct, according to the conditions that are present. The effects of an arrest of septic organisms will first be evident in the bile ducts, for these, unlike the pancreatic ducts, are not more or less immune from the constant presence of intestinal bacteria. When the virulence of these organisms has been increased by growing in the morbid secretions and diseased tissues of the bile ducts the immunity of the pancreas may be overcome and pancreatitis follow. Inoculation and re-inoculation from the pancreas to the bile passages, and back from the bile passages to the pancreas, will then occur so that the pancreatic lesion will continually progress so long as the obstruction of the common duct is unrelieved. When the blocking of the ducts by gall stones is complete the inflamed walls present a ready path by which infection may travel from the intestine, and we consequently find cholangitis and an infected condition of the bile in practically every case. Absolute blocking of the common bile duct is, however, very uncommon, except in cancer of the head of the pancreas, for, as we shall see later, bile pigment can be found chemically in the faeces in nearly every case of gall stones, even when the stools appear white to the naked eye.

Beside the direct route of entry by way of the bile papilla and accessory pancreatic duct, intestinal organisms may reach the bile ducts through the portal vein. This is probably one of the ways in which simultaneous gall stone formation and damage of the pancreas are initiated, and accounts for the inflammatory changes in the pancreas being more marked in some instances than might be expected from the length of time the mechanical obstruction of the ducts has been known to exist.

The examination of the urine from a case of jaundice should be as complete as possible, in order that every abnormality which it will show may be discovered and considered in arriving at an opinion. It is as misleading to rely on one test as it would be clinically to diagnose scarlet fever only by examining the tongue. The points to which I usually pay special attention are: The presence of bile, urobilin, sugar, albumen, an excess of indican, and the results of the "pancreatic" reaction.

### *Bile.*

A very large number of tests for bile in the urine have been described, but after trying most of them I have come to the conclusion that Rosenbach's modification of Gmelin's nitric acid test is the simplest and most reliable. If a sufficiently large quantity of urine is filtered through the same filter paper the test is as delicate as many more complicated methods. It must be borne in mind that it is not always possible to detect bile pigment in the urine, even with the most delicate test, in the early stages of an attack of jaundice and later when the pigmentation of the

skin is clearing up. In the former an examination of the blood serum may be helpful in arriving at a correct conclusion, but the simplest test is to examine the conjunctivae. If a distinct icteric tinge is discovered by daylight—not artificial light, by which the coloration is not so well seen—it shows that there is some obstruction to the free flow of bile into the intestine.

*Urobilin.*

The presence of urobilin in the urine, as shown by the alcoholic zinc acetate test, points to there being interference with the functions of the liver. If abnormal blood destruction can be excluded, a positive reaction is suggestive of cholangitis, which, if there is distinct jaundice, is probably due to the presence of gall stones in the common bile duct. If the jaundice is only slight, and there is also evidence of pancreatitis and intestinal catarrh, the cholangitis may be due to an ascending infection of the bile ducts from the duodenum. A reaction for urobilin is comparatively uncommon in malignant disease of the pancreas and bile ducts, and when present points to the existence of secondary growths in the liver.

*Indican.*

An excess of indican in the urine is suggestive of there being abnormal putrefactive changes in the contents of the upper part of the intestine, with catarrh of the walls. From the supposed antiseptic action of the bile it might be expected that in all cases where it is prevented from entering the intestine such abnormal putrefactive changes would occur, but an excess of indican is rarely met with in cancer of the head of the pancreas, where the blocking of the bile duct is generally absolute, and in cases where there are impacted gall stones in the common bile duct it is also uncommon. It is rather more frequent when the stones are "floating" in the common duct, but is most common with "catarrhal" jaundice where the obstruction is due to swelling of the mucous membrane and lymphatic tissue in and around the biliary papilla, or to swelling of the head of the pancreas, secondary to an ascending infection from the duodenum.

*Sugar.*

The presence of sugar in the urine of a case of chronic jaundice is almost pathognomonic of serious disease of the pancreas which may be malignant or inflammatory. I have met with glycosuria in 7.5 per cent. of my cases of jaundice, and find that it occurs with almost the same frequency in cancer of the pancreas and in jaundice due to gall stones—8 per cent. and 9 per cent. respectively. I found sugar in the urine in 1 out of 8 cases of growth of the common duct. The quantity cannot be relied upon as an indication of the nature of the disease, for in cancer it has varied from traces to about 2 per cent., and in gall-stone cases from traces to 6 or 7 per cent., the gall-stone cases with high percentages being all of old-standing. A small quantity of sugar is no bar to operation if proper precautions are taken and other indications suggest that it is advisable; in fact, it is not infrequently found that if the glycosuria is dependent upon an inflammatory lesion of the pancreas the sugar diminishes or disappears after operation, and with suitable medical and dietetic treatment the patient may live for many years. I have two patients who were operated on—one 12 and the other 14 years of age—who are now in comparatively good health, except for the presence of sugar in their urine. Pancreatic diabetes due to cirrhosis of the gland, secondary to gall stones or duodenal ulcer, is, in my experience, not a very serious disease if the cause of the condition is recognized and means are taken to prevent the progress of the inflammatory changes at a sufficiently early stage. The improvement which follows operation in cases where there is obstruction of the ducts, is to be attributed to the relief of the tension within the ducts and to the subsidence of the associated catarrhal inflammation. The cirrhotic changes are permanent, and it depends upon the extent of these as to whether the glycosuria persists or not. But it must not be too readily assumed that, because the sugar disappears or is very much diminished after an operation, the glycosuria has been cured. The rest in bed and comparative starvation are sometimes the chief factors in bringing this about, and when the patient returns to a more active life and a fuller diet the sugar reappears or increases. He is, however, in a better position to undergo a course of dietetic and medical treatment with hope of success, and if this is properly carried out, bearing in mind the cause of the condition, a further improvement will probably take place. Operative treatment is inadvisable when there is a large amount of sugar or an excess of ammonia nitrogen in the urine with acidosis, which is not readily controlled. The chief dangers, in addition to the risk of coma, which is considerable when there are over 2 grams of ammonia nitrogen in the urine in twenty-four hours, are sepsis and failure of the wound to heal. The former can be guarded against, but the latter has proved in several cases with which I am acquainted a serious complication.

It is necessary to exclude the presence of sugar before proceeding to carry out the "pancreatic" reaction, as the dextrosazone crystals obscure the result. If sugar is found in the urine it may be removed in the way I described in an article on pancreatic diabetes in 1908,[1] but this method is not altogether satisfactory, especially in inexperienced hands, and when the *rationale* of the process is not appreciated. I am at present engaged in perfecting a method of carrying out the "pancreatic" reaction with diabetic urines which is more rapid and appears to give more reliable results.

*"Pancreatic" Reaction.*

A positive pancreatic reaction in the urine points to there being some active degenerative changes of an inflammatory character in the pancreas at the time the urine was passed. It must be noted that no reaction is obtained in quiescent cirrhosis of the gland the result of past inflammation. I have obtained a positive reaction in 64 per cent. of the cases of chronic jaundice that I have examined, suggesting that in that proportion the condition was associated with, or was due to, an inflammatory lesion of the pancreas. In 30 per cent., that is to say in nearly half of these, the jaundice was dependent upon the presence of gall stones in the common bile duct. Common duct cholelithiasis does not necessarily give rise to chronic pancreatitis, for the gall stones may be in the supra-duodenal or retroduodenal portions of the duct, where they do not come into relation with the pancreas, and if in the pancreatic portion this may run behind the head of the pancreas instead of through it. Even when the intra-parietal portion of the duct is reached a small stone may pass without causing obstruction of the pancreatic duct if, as occasionally happens, the bile and pancreatic ducts enter the duodenum by separate openings instead of in the classical manner. Of my cases of common duct cholelithiasis 69.6 per cent. gave a positive pancreatic reaction, and 30.4 per cent. a negative result, which corresponds fairly closely with the 62 per cent. and 38 per cent. in which, according to Helly, the common bile duct lies imbedded in, and runs in a groove on the posterior surface of, the pancreas. If those in which no jaundice was present be excluded, 71 per cent. gave a positive reaction, and 29 per cent. a negative result. The slightly higher proportion giving a positive reaction than might theoretically be expected, especially in the jaundiced cases, is probably to be explained by a simultaneous infection of the bile and pancreatic ducts in the way I have explained. An associated cholangitis and pancreatitis is also the probable explanation of the positive pancreatic reaction obtained with 9 per cent. of the cases in which gall stones were found only in the gall bladder at operation.

With primary malignant disease of the pancreas the pancreatic reaction is usually negative, but in about 30 per cent. of cases it is positive, owing probably to the inflammatory changes set up in the gland tissue by the blocking of the pancreatic duct and the irritation of the rapidly extending growth.

Next to gall stones and malignant disease of the pancreas the most common diagnosis in chronic icterus is "catarrhal jaundice." It is usually, if not always, associated with gastro-intestinal disorders, and, owing to the close relation of the bile and pancreatic ducts to each other and to the duodenum, it is likely that there will be some pancreatitis in cases of this description. In the early stages the pancreatitis will be of the catarrhal type, resulting from obstruction of the ampulla of Vater and infection of the duct of Wirsung from the duodenum; but, if the intestinal catarrh remains unrelieved, and the accessory pancreatic duct is patent, the infection may be

accentuated in the way I have previously mentioned, and marked swelling of the head of the pancreas follow. Should the case be one where the common bile duct passes through the head of the pancreas, the inflamed gland tissue will compress the bile duct, intensifying the jaundice, and, as Mayo Robson has suggested, causing it to persist much longer than is usual, so that a suspicion of gall stones, or even of malignant disease of the pancreas or common duct, may arise. The presence of a positive pancreatic reaction in 80 per cent. of the cases of catarrhal jaundice that I have examined shows how frequently the condition is associated with active degenerative changes in the pancreas. Fifteen of my cases in which the analysis of the urine had pointed to the presence of pancreatitis have been operated on, because of the persistence of the jaundice, and an enlarged and hard pancreas was found in them all.

Growths of the common bile duct may or may not give rise to pancreatitis and a pancreatic reaction in the urine according to their situation and extent. I have had three cases of malignant disease of the ampulla of Vater and each gave a positive reaction, the growth acting like an impacted gall stone in that situation. Cancer of the upper portion of the duct or of the gall bladder may not at first cause pancreatitis, but as the growth extends down the duct it will set up inflammatory changes in the gland. Two of my cases of cancer of the common duct gave a positive pancreatic reaction and six a negative result. The jaundice in twelve of my cases was due to metastatic deposits of growth from primary malignant disease in various situations, and eleven of these gave a positive pancreatic reaction, pointing to the pancreas being invaded by the growth.

It will be seen that, while the pancreatic reaction in the urine is of value as showing the presence or absence of pancreatitis in cases of persistent jaundice, it does not by itself differentiate between the causes, which may be gall stones in the common duct, an ascending infection from the duodenum, malignant disease of the pancreas, or more rarely a growth of the common duct. In addition, the possibility of an inflammatory condition of the gland from disease of the heart, lungs or blood vessels, tubercle, syphilis, etc., with jaundice from other causes, has to be borne in mind. To make a satisfactory diagnosis, the whole of the results to be obtained by a thorough qualitative and quantitative analysis of the urine and faeces must be taken into account, and these again be checked by a consideration of the clinical signs and symptoms.

An analysis of the faeces is of importance in all cases of obstructive jaundice, and is particularly valuable where there is a suspicion of malignant disease. The percentage of unabsorbed fats, the relation between the saponified and unsaponified fats, the presence of stercobilin and occult blood, the results of the pancreatic insufficiency test, and the proportion of inorganic ash must be determined and carefully considered, for from them one can determine with a considerable degree of accuracy the extent of the pancreatic mischief, also whether the biliary obstruction is complete or not, and then infer whether one is dealing with a case of growth or simple obstruction.

The effects of the exclusion of bile from the intestine are shown in the faeces mainly by (1) defective absorption of fat; (2) an increase in intestinal putrefaction; and (3) loss of the faecal colouring matter.

*Fats.*

In the stomach fats undergo little or no change, but when they reach the small intestine they are attacked and broken down by the steapsin of the pancreatic juice into fatty acids and glycerine. A variable proportion of the former unites with the alkalis o the intestinal secretions to form soaps. The soaps thus formed, the uncombined fatty acids, and the glycerine are absorbed by the epithelial cells of the intestinal wall, and are there synthesized to again form neutral fats. The presence of bile favours the action of the pancreatic secretion by helping in the emulsification of the fat, through its alkalinity, and by directly reinforcing the activity of the tryptic ferment. It also makes the free fatty acids, which are insoluble in water, soluble, and increases the solubility of the alkaline soaps. If, therefore, the bile is excluded from the intestine the total amount of fat in the faeces will be increased and the greater part should consist of combined fatty acids or soaps. Such, in fact, is usually found to be the case in simple gall-stone obstruction and malignant disease of the common bile duct, or gall bladder, when the fat-splitting functions of the pancreas are being normally carried out. If, however, the digestive powers of the pancreas are interfered with, from obstruction of the duct of Wirsung by a stone, malignant disease of the head of the gland, or advanced cirrhosis, the cleavage of fats is also defective and they appear in the faeces mainly in the form of neutral fats and free fatty acids. In a typical case it is consequently possible to say whether there is simple biliary obstruction or serious interference with the digestive functions of the pancreas from one or other of the causes I have mentioned, by estimating the fats in the faeces and determining the proportions of saponified and unsaponified fats. The absence of digestive ferments does not, however, cause an entire cessation of the fat-splitting process, for, even in health, a certain amount of fat is broken down into fatty acids and glycerine through the activity of organisms of the colon group in the lower part of the small and upper part of the large intestine. If the activity and number of these bacteria is increased, as appears to be the case in intestinal catarrhs, they may bring about a considerable amount of fat digestion, but, since the fatty acids formed in this way are not absorbed during their passage through the colon and sigmoid but combine with alkalis, they appear in the faeces as soaps, chiefly of calcium and magnesium. Hence in catarrhal conditions of the intestine and also in catarrhal jaundice, it is usually found that the combined fatty acids are in excess and that the inorganic ash is also increased.

The greatest increase in the amount of total fat is seen in cancer of the pancreas, where I have found as much as 93 per cent. of the dry weight of the faeces to consist of fat. In gall-stone cases where there is jaundice and pancreatitis the total fat in my cases has averaged 56 per cent., and in 60 per cent. of them the unsaponified have been in excess of the saponified fats. Simple jaundice due to gall stones, where there has been no involvement of the pancreas, has given about the same reading of total fat in many instances, but in 75 per cent. the saponified have exceeded the unsaponified fats. Growths of the common bile duct, or gall bladder involving the common duct, produce much the same effects as gall stones, the saponified exceeding the unsaponified fats, except when the growth is situated at the ampulla of Vater or is invading the pancreas, when the unsaponified fats are in excess.

*Intestinal Putrefaction.*

The antiseptic action of bile has been much overrated. Its influence on putrefactive bacteria is very slight, and is quickly lost. Indirectly, however, the bile in the intestine has an important function in keeping the putrefactive processes within bounds by stimulating peristalsis, and so preventing stagnation of the intestinal contents. It also acts indirectly on putrefactive processes by aiding fat absorption, and so allowing more complete digestion of the proteid elements of the food. Absence of bile from the intestine, therefore, tends to favour constipation and irregular action of the bowels. The effects of the consequent excessive putrefaction are shown by the offensive smell and markedly alkaline reaction of the stools, and are seen in the urine in the shape of an increase in the ethereal sulphates, an excess of phenol and aromatic oxy-acids, and sometimes by a well-marked reaction for indican. These effects are more marked when there is an associated intestinal catarrh, and are more commonly seen in catarrhal jaundice than in jaundice due to gall-stone obstruction. The presence of pancreatic disease modifies the condition of the stools. If the functions of the pancreas are seriously interfered with, the motions become more bulky, often very strikingly so, are more frequent, and have an acid reaction; the odour, too, is somewhat different, resembling that of rancid bacon.

*Colour.*

Complete diversion of the bile from the intestine gives to the faeces a light grey or slaty tint, producing the so-called "clay-coloured" stools. It should be remembered, however, that although the presence of the normal brown colour of the faeces may be taken as satisfactory evidence that bile is freely passing into the intestine, the existence of "clay-coloured" motions is not of itself a conclusive

sign that there is complete biliary obstruction. This is a most important point to determine with certainty, for while complete obstruction is the exception in gall-stone cases, it is the rule when the obstruction is due to malignant disease of the head of the pancreas. Chemical examination of the faeces in the cases I have investigated has shown that in over 60 per cent. with cancer of the pancreas no stercobilin could be found, and in 34 per cent. only traces could be discovered, whereas traces at least of stercobilin were found in every instance where the obstruction was due to gall stones, and in 82 per cent. a well-marked reaction was obtained, in spite of the fact that in many of them the faeces were quite white to the naked eye. Traces of stercobilin are usually found in malignant disease of the common bile duct and cancer of the gall bladder invading the common duct, for in these the growth is usually of a soft character and allows a certain amount of bile to percolate through, unlike the scirrhous growth of the head of the pancreas which compresses the duct tightly from without. The white appearance of the faeces is usually most striking when the obstruction of the bile flow is associated with well-marked pancreatic disease. The peculiar glistening, silvery character of the motions in these cases appears to be due partly to the presence of fatty acid crystals, which act upon light like snow and other finely crystalline bodies, and partly to the action of anaërobic bacteria, which reduce any bile pigment that may be present to a colourless form.

In catarrhal jaundice the unabsorbed fat is intimately mixed with the other constituents of the faeces and the exudates from the intestinal walls, so that the motions are of a light-grey colour and have a peculiar salve-like consistency. They give a well-marked reaction for stercobilin on chemical analysis.

*The Pancreatic Insufficiency Tests.*

The pancreatic insufficiency tests of Gross and Heiberd give useful indications as to the functional activity of the pancreas, but they only show very gross changes in the digestive powers of the gland, and so are of limited use when taken alone. A negative pancreatic insufficiency test—that is to say, one in which there is normal casein digestion—shows that there is no serious interference with the digestive functions of the pancreas, and in jaundice cases is against a diagnosis of malignant disease of the pancreas. A well-marked positive result points to malignant disease, advanced cirrhosis of the gland, or blocking of the duct of Wirsung by a gall stone impacted in the ampulla of Vater. In cirrhosis of the pancreas and blocking of the duct by gall stones one almost always finds, however, that there is some casein digestion, so that the more incomplete the digestion the more likely is it that the jaundice is due to obstruction of the common bile duct by malignant disease of the head of the pancreas.

*Occult Blood.*

The constant presence of occult blood in the faeces is suggestive of malignant disease somewhere in the course of the gastro-intestinal tract. Its intermittent presence points to simple ulceration. In cases of cancer of the pancreas, common bile duct, or gall bladder, occult blood occurs in the faeces with great constancy, so that a positive reaction in a case of deep jaundice, especially if it is found on four or five consecutive days, points to the jaundice being due to a growth in one or other of these situations. A positive result may also be due to malignant disease of the stomach or intestine with glands in the portal fissure, or more rarely to advanced simple chronic pancreatitis, but a consideration of the results obtained by other methods of examination will usually decide to which of these it is to be attributed.

*Inorganic Ash.*

Normally the inorganic ash of the faeces constitutes from 10 to 15 per cent. of the dry weight, but when from any cause there is a catarrh of the intestinal walls this percentage is considerably increased. One, therefore, usually finds that there is an excess of inorganic ash in catarrhal jaundice and in cases where the jaundice is secondary to growths of the intestinal canal, particularly the colon.

By a timely and correct diagnosis, such as is possible from a careful consideration of the clinical history and symptoms, and the information to be obtained by a thorough analysis of the urine and faeces, the complications and sequelae likely to arise in cases of chronic jaundice, such as serious disease of the pancreas, cholangitis, cirrhosis of the liver, etc., may be avoided. Delay is always dangerous, and it is useless to await developments until the case is only of interest to a pathological anatomist. The cause of the jaundice must be determined at the earliest possible moment and the treatment be based upon the conclusion arrived at. A diagnosis of gall stones obstructing the bile duct, made on the clinical data and confirmed by an examination of the excreta, calls for immediate operation, as the only likely spontaneous cure is Nature's crude and dangerous remedy of making a fistula by which the stone may escape into the duodenum, or elsewhere. Catarrhal jaundice very frequently clears up spontaneously, but if after six weeks' rest in bed, with dieting and medical treatment, the jaundice persists and the urinary "pancreatic" reaction is positive, it is advisable to invoke the aid of the surgeon to perform a short-circuiting operation to avoid further damage to the pancreas. In the last stages of malignant disease operation is only likely to shorten the brief span of life still left to the patient, but in the earlier stages much may be done to make existence more bearable by a cholecystotomy or cholecystenterostomy to relieve the intolerable itching of which complaint is chiefly made. At the same time it is well to bear in mind that many cases diagnosed clinically as inoperable carcinoma of the pancreas have been shown on chemical examination of the urine and faeces, and by their after-history, to be suffering from chronic inflammation of the gland capable of retrogression.

REFERENCE.
1 *Surgery, Gynaecology, and Obstetrics*, January, 1908, p. 22.

## OBSERVATIONS ON THE URINES OF MARATHON RUNNERS.

BY GRAHAM CHAMBERS, B.A., M.B.,
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SINCE von Leube in 1877 reported his observations on the urines of soldiers a number of reports bearing on the relation of albuminuria to physical exertion have appeared, but still the literature is not as plentiful as one might desire. It occurred to me, therefore, that some observations made on urines of Marathon runners might prove instructive and of value to those interested in the subject.

The subjects of the investigation were eight athletes who competed in a Marathon race at Toronto on May 24th, 1910. The race began at 8.30 p.m., and three hours before the contestants ate fairly heavy meals of beef, bread, butter, etc. The urines were obtained immediately before and again immediately after the race, and analysed, tests being made for "nucleo-albumen" (Mörner body), albumen, globulin, sugar, and indican, and the sediment examined microscopically.

The results showed several interesting features. The urine of one contestant, who, on account of abdominal pain and vomiting, was forced to quit in the seventh mile, contained a great excess of indican both before and after the race. I may mention that this runner's previous records had been the best of all the contestants, and in this race he was looked upon as a likely winner.

This observation shows the importance of keeping the digestion of an athlete in a healthy condition, a point which I think is recognized by trainers.

Another interesting feature was the presence of hyalin and faintly granular casts in a urine voided after the race, although "nucleo-albumen," albumen and globulin were absent.

One might also make special mention of the presence of calcium oxalate crystals in the sediments of five of the eight specimens collected before the race. After the contest the urines of the same runners contained the same crystals in their sediments, but they were much less plentiful in each specimen. Indeed, in three of the five they were found only after examining several slides.

The following is a tabulated summary of the important points of the analyses:

*Before the Race.*

1. "Nucleo-albumen," albumen, globulin and sugar absent in every specimen.
2. Indican present in much excess in one urine. In the other specimens it was present in normal quantities.
3. The sediments, which appeared normal to the naked eye, showed nothing abnormal microscopically except oxalate crystals which were present in five of the eight specimens.

*After the Race.*

1. Seven specimens contained "nucleo-albumen," albumen, and globulin, and in the sediments hyalin and faintly-granular casts, and epithelial cells. In three of these there were in the sediments red blood corpuscles; in five calcium oxalate crystals sparsely distributed.
2. One specimen was free from "nucleo-albumen," albumen, and globulin, but contained hyalin and faintly-granular casts in the sediment.
3. Sugar absent in all.
4. The tests for indican gave practically the same results as those before the contest.

## INTUSSUSCEPTION OF THE APPENDIX.

BY

J. W. THOMSON, M.B., C.M.,

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CASES of intussusception of the appendix caeci have been grouped into three varieties by Kelly. In the first of these the presence of the appendix is a mere incident, being compelled to travel with the intussuscepted colon. In the second the base of the appendix forms the apex of the intussusception, and in the third the appendix is completely or partially inverted, like the finger of a glove, "with or without invertion of caecum, colon, or ileum."

The first case I desire to record does not quite correspond to any of these, but may, perhaps, be included in the first group:

A. S., aged 6, admitted to hospital December 13th, 1909. Slipped on ice, injuring, apparently slightly, the abdomen. Soon after he began to complain of pain in the abdomen, but continued to attend school for a week. The pain was not constant, but occurred in paroxysms, which increased in force and frequency, and was referred to the umbilicus. At home he was treated vigorously with aperients.

I saw him about a week after the onset, and found him suffering severe pain, screaming in agony. A coil of intestine in active peristalsis could be seen to the right of the umbilicus, transverse in direction. He was sent to Wakefield Hospital with a view to early operation. Next morning, however, the pain had greatly diminished, and within a day or two disappeared entirely. At this stage nothing could be felt on palpation; there was no rigidity, no tympany, no pain or tenderness. There was no vomiting at any time, no blood and mucus in stools. Rectal examination revealed nothing. Temperature was always normal. Bowels acted regularly, and urine was normal.

Gradually he returned to ordinary diet and began to get up, and at Christmas he had the extras that the season brings, but no recurrence of pain took place. He was sent home, and the pain returned almost at once.

On readmission the pain quickly subsided, still it was evident that the boy was not thriving, and seemed to be losing weight. On January 25th, 1910, with a tentative diagnosis of appendicular colic, the abdomen was opened by the incision of Battle. The caecum, which was on the level of the umbilicus, could be felt to contain an apparently solid body. The meso-caecum was long, and the caecum was brought into the wound. The base of the appendix was located in its usual position; from this point it passed outwards almost transversely, closely adherent to the caecum in its course for almost 1½ in.; it then took an almost rectangular turn and disappeared into an invagination of the caecum.

The condition was therefore an invagination of the caecum containing the terminal inch of the appendix. An effort was made to reduce the intussusception, but ordinary methods—namely, expression, expression with slight traction—failed.

The caecum was then incised anteriorly and pressure made from within on the congested hard conical, apparently solid intussusception. Gentle effort was of no avail; less gentle effort merely succeeded in rupturing the caecal wall round the ostium.

The intussusception was then incised, and in it was seen the terminal portion of the appendix closely adherent to the inner side of the invaginated caecum almost to the tip. The tip was loosely attached to the caecal wall. The neighbouring mesenteric glands were enlarged. The caecum was resected. Whey milk and water was given from the first. Bowels acted at the end of the second day, and the child got up on the tenth day. The appendix, though not pursuing a straight course, still seemed tightly stretched from base to apex, and it seemed as if the size of the intussusception was regulated by the length of the appendix.

Was the accident the cause of the condition? A case is recorded in "Kelly and Hurdon" in which a similar injury was supposed to be the cause of a somewhat similar condition. Was the presence of the appendix a mere incident in the case? The curved course of the appendix would seem to indicate that the thickening of the caecal wall was the primary condition. "Any inflammatory process in the head of the caecum causing a localized thickening of its walls would offer a convenient grip for the circular muscle of the bowel to catch and exercise propulsive force in the direction of the current" (Kelly and Hurdon). Or was there paralysis of part of the caecal wall from haemorrhage, and hence intussusception (Sutherland)? The long intervals of freedom from pain or tenderness when taking ordinary diet were remarkable, but still the child was thinner.

Perhaps, at any rate in a somewhat earlier case, a better, and certainly less severe, method of treating such a case would be to detach the appendix at its base and from the caecal wall outside the invagination. Then incise the caecum in a circular manner round the ostium and remove the invaginated part entire with the contained appendix.

The second case was primarily one of Henoch's purpura in a boy aged 4. He was admitted, April 14th, 1908, with swelling and pain in the knee-joints, and a rash resembling that of chicken-pox and haematuria.

About a fortnight after the onset of the illness severe pain in the abdomen set in, with stools of blood and mucus. I saw him two days after this, and now vomiting had begun, and increased till he could retain nothing. There was slight distension of the abdomen; no definite tumour could be felt, but there was rigidity of the right side. At the operation was found an invagination of the caecum, containing the whole of the appendix, the base of the latter forming the apex of the intussusception. It was reduced with ease, and the expressed appendix stood up rigid and vertical, inviting the extirpation which was its fate. Recovery was uneventful. Albuminuria persisted for six months, but the patient is now in excellent health.

Lorenz maintains that intussusceptions in this region begin, not at the ileo-caecal valve, but originate by a rolling in of the caecum itself. In this case the caecum must have rolled in sufficiently to obstruct the ileo-caecal orifice, and is an example of the invaginatio caeco-colica of Lorenz—a potential intussusception of the ordinary variety.

A FRENCH Anthropological Institute has recently been founded in connexion with the Natural History Museum of Paris where there is an anthropological laboratory. The Institute evidently accepts in the fullest sense Pope's dictum that the proper study of mankind is man, and intends to study him in all his aspects. In addition to what may be called anthropologists pure and simple, it is intended that the Institute shall include in its membership palaeontologists, zoologists, biologists, physiologists, psychologists, linguists, archaeologists, sociologists, geologists, ethnologists, travellers—the list is as long and as varied as that of Don Giovanni's conquests. The President is M. Salomon Reinach; the Secretary-General, M. Lapicque.

THE third International Laryngo-Rhinological Congress will be held at Berlin this year (August 30th to September 2nd) under the presidency of Professor Bernhard Fraenkel. The following is the programme of discussions: (1) The relations of experimental phonetics with laryngology; to be opened with reports from Drs. Gutzmann of Berlin and Struyken of Breda. (2) Bronchoscopy and oesophagoscopy—indications and contraindications; to be introduced by Drs. Killian of Freiburg, Kehler of Vienna, and Chevalier Jackson of Pittsburg, U.S.A. (3) The lymphatic apparatus of the nose and the naso-pharynx in relation to other bodies; to be opened by Drs. Broeckaert of Ghent, Poli of Genoa, and Logan Turner of Edinburgh. (4) The so-called naso-pharyngeal fibromata: the site and manner of their attachment and their treatment; to be opened by Drs. Jacques of Nancy and Hellat of St. Petersburg. All communications relative to the congress should be addressed to the secretary, Professor Rosenberg, 26 Schiffbauerdamm, Berlin, N.W.

# A Clinical Lecture
ON
# CHRONIC TRAUMATIC MASTITIS.

BY
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[*With Special Plate.*]

FOR many reasons the term "traumatic mastitis" has been applied to the class of case I am about to describe. I have not been able to adduce any opsonic indication of an infective process, although cases have been tested, before and after massage, for staphylococcus, streptococcus, pneumococcus, and *Bacterium coli communis* infections; neither has there been any disturbance of temperature when regularly taken, nor in the quantitative and qualitative estimation of leucocytes in the blood. There was no enlargement of lymphatic glands. In two cases I have been allowed to puncture the centre of inflamed nodules; there was no growth on the media inoculated, nor were any micro-organisms stained in the blood extracted from the inflammatory foci. Moreover, the cases recovered when perfectly adjusted corsets and mammary supports were applied.

Added to all these negative points there remains the fact that I have not been able to examine efficiently the actual lesions, because they recovered, and there was no justification for adopting operative procedure. Therefore I am not justified in asserting positively that there is no infective agent in them; but, after all, the practical fact remains that the pathological state of affairs can be prevented and cured by corsets and mammary supports which are properly applied and properly made.

In chronic traumatic mastitis one breast may be affected, in which case it is usually the right; but the affection is more commonly observed in both breasts. The condition is usually worse at the menstrual periods. There are generally two or many painful, tender and hard lumps in the breast. The pain is increased by the jolting of coming downstairs or walking on hard pavements and so forth. The lumps are situated most commonly in the lower and outer parts of the breast, but they are not infrequently found in the extension of the gland towards the axilla, at the lower and inner parts of the gland, and at the edge of the inner part; the situation of the cancer in Fig. 3 is an example of the last. There is sometimes a history of the lumps getting smaller and larger, and during their resolution one comparatively large lump may be observed becoming two small discrete nodules before disappearing. There is no abnormal adhesion of the lumps to the skin, and no enlarged lymphatic glands can be felt. In the case of a young girl blood escaped from the nipple after the patient had bent quickly forward, an act which caused a staybone to dig into the breast at about the situation seen in Fig. 1A. The corset and breast supports in this case were properly adjusted, and there has been no more trouble. In another case the skin was actually bruised by the impact of the staybones upon the breast when the patient bent forwards. I may state here that the bodice of the dress is often stiffened by whalebone or steel supports, and on these the breasts may be impaled in bending either forward or laterally.

Some patients realize that the stays are causing their trouble, and come up with their staybones and steels bent, broken, or removed: or having already adopted a form of corset designed to remedy their condition, after having consulted a corset maker. But most of them have no idea of connecting the cause and effect.

I believe that corset makers do not sufficiently realize that when the patient bends forwards or laterally, even when wearing what appear to be sufficiently low corsets, the breasts practically may be impaled upon the tops of the bones or steels.

The disease is rarely acute enough to necessitate the advice of rest in bed and hot fomentations.

From what has been said, you will realize that the corsets which are worn by these patients are the main cause of the continuation of the symptoms, if not actually their originating factor. I believe these corsets are in most cases the determining cause of this variety of mastitis.

I cannot show you microscopical sections of this condition, because all my cases have recovered and no excision has been necessary. I could show some interesting sections which I have made of breasts, removed *post mortem*, which were supposed to be normal; but I would rather make that the subject of another lecture. Perhaps, however, I may be allowed to digress in order to say that when sections of them are observed under the microscope one finds in some of these cases: (*a*) Chronic mastitis—that is to say, a condition in which lymphocytes, spindle cells, and a few polynuclear leucocytes are seen between the alveoli of the glands, and an immense amount of fibrous tissue separating one cluster of alveoli from its neighbours; (*b*) in other breasts one sees much epithelial proliferation into the alveoli and ducts; (*c*) in other breasts there are to be seen multiple cysts, lined by cubical epithelium, into which are growing intracystic papillomata—the epithelium covering which can be seen to be undergoing regular mitosis; (*d*) whilst in other cases there are signs of tissue proliferation which I have shown to various authorities, some of whom believe that the appearances indicate early duct cancer until I inform them that they have been looking at sections made from breasts taken *post mortem* from patients who died of renal or heart or lung troubles, as the case may have been, and in which no breast symptoms were complained of; (*e*) in yet other cases a combination of any of the above changes may be seen in the same breast. I have never seen in any of these cases an unsuspected alveolar carcinoma.

I refer to these interesting sections not because I believe that they result from traumatic mastitis, although some of the mastitis observed in them may have been traumatic, but because it is important to know that a great deal of pathological change may be taking place in breasts which are apparently normal—a fact which emphasizes the importance of keeping all breasts free from chronic traumatic irritation.

As I have said, the main causes of this type of mastitis are corsets which have not been made upon hygienic principles; and most of the corsets at present worn certainly have not been made and fitted upon these lines.

Traumatic mastitis can be prevented and cured by corsets properly made. Such corsets may be of two kinds; the better, in my opinion, I will describe first.

1. Corsets which are made so low that a breast cannot be impaled upon them, whatever position a woman may assume. A pair of corsets of this kind cannot support the breast, and a corselet must be worn where support is necessary. A corselet may be one of many kinds, but I believe one of the most efficient to be that seen in Figs. 5 and 6. This corselet consists of several turns of

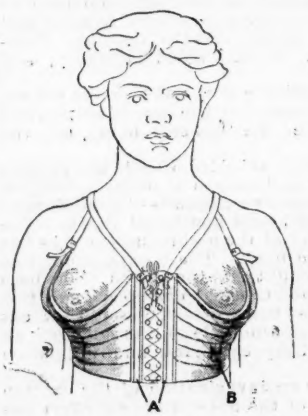

Fig. 5.

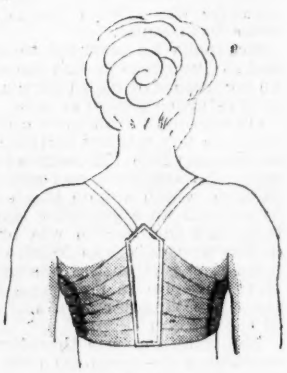
Fig. 6.

webbing adapted to the lower portion of the thorax and shaped to contain the breasts. It is constructed on the principle of a many-tailed bandage; the turns are fixed to a stiffening material behind; in front they end in busks, which must be well padded, especially at the top. The lower border is fixed in front and behind to the corset; the upper border does not reach to the level of the nipples in order to obviate any pressure on them. The corselet is, in the main, self-supporting, but elastic braces

## PLATE I.

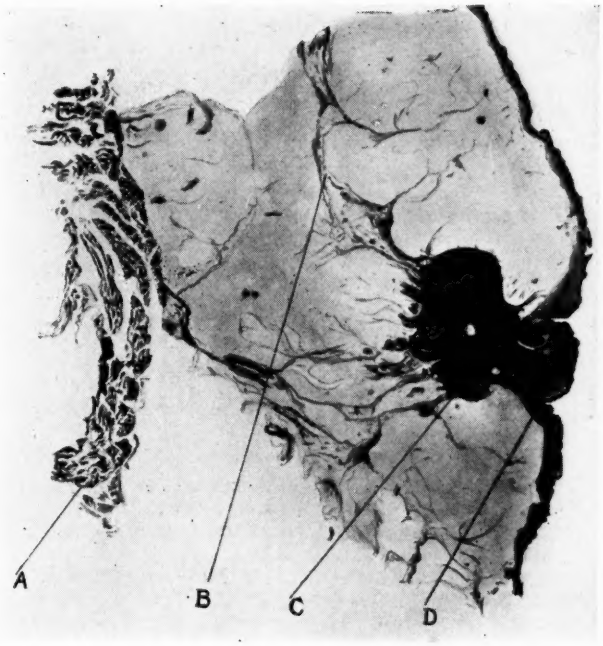


FIG. 1.—ANTERO-POSTERIOR SECTION IN VERTICAL PLANE OF BREAST, SHOWING POSITION OF CANCER IN CASE I. A, Pectoralis major; B, atrophied breast tissue; C, cancer; D, nipple.

FIG. 1A.—DIAGRAM TO SHOW PRESSURE OF STAY BONE AT SITE OF CANCER IN CASE I.

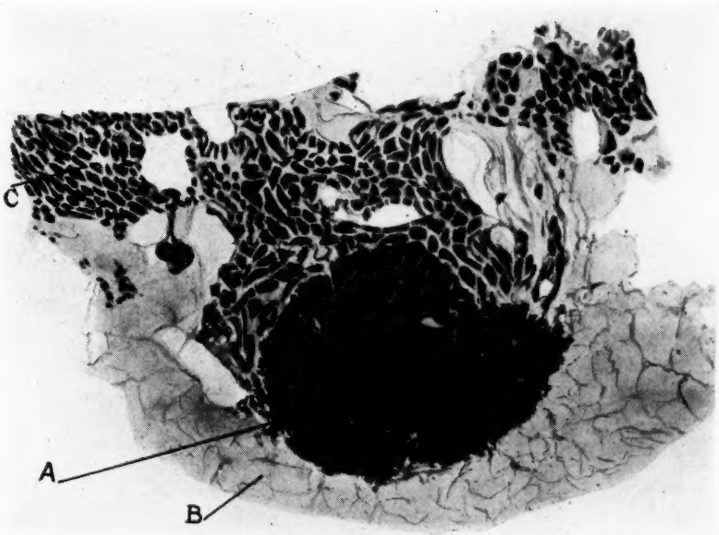


FIG. 2.—VERTICAL SECTION IN TRANSVERSE PLANE, SHOWING CANCER AT OUTER MARGIN OF BREAST IN CASE II. A, Cancer; B, subcutaneous fat; C, normal breast tissue.

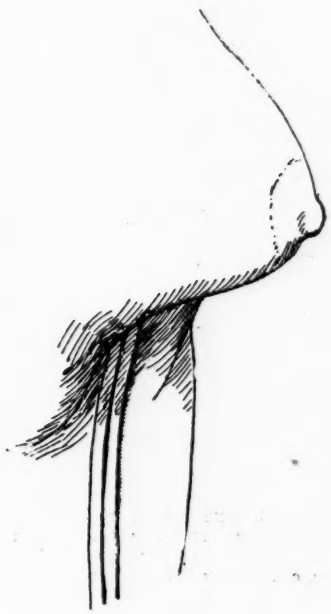

FIG. 2A.—DIAGRAM SHOWING STAY BONE PRESSING ON THE CANCER IN CASE II.

TO ILLUSTRATE MR. G. LENTHAL CHEATLE'S LECTURE.

## PLATE II.

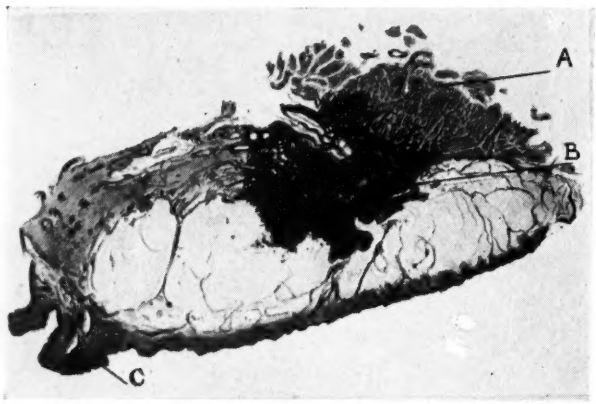


FIG. 3.—ANTERO-POSTERIOR SECTION IN HORIZONTAL PLANE OF BREAST, SHOWING CANCER AT INNER MARGIN IN CASE III. A, Pectoralis major; B, cancer; C, nipple.

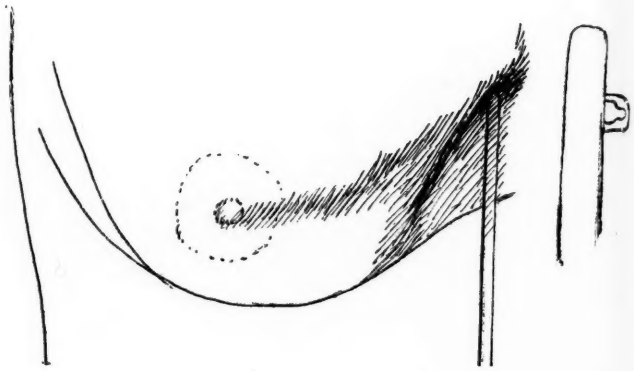

FIG. 3A.—SHOWING THE POINT OF IMPACT OF STAY BONE AT SITE OF CANCER IN CASE III.

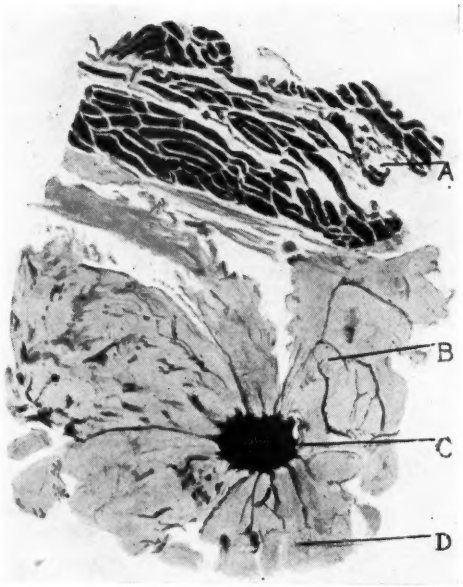


FIG. 4.—ANTERO-POSTERIOR SECTION IN VERTICAL PLANE OF CANCER AT OUTER MARGIN IN CASE IV. A, Pectoralis major; B, atrophied breast tissue; C, cancer; D, subcutaneous fat.

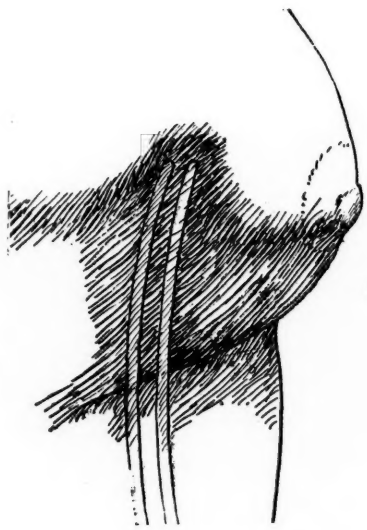

FIG. 4A.—DIAGRAM SHOWING PRESSURE OF STAY BONE ON CANCER IN CASE IV.

TO ILLUSTRATE MR. G. LENTHAL CHEATLE'S LECTURE.

are carried over the shoulders; these join it in the middle line behind, while in front they bifurcate above the breasts, one strap passing to the corresponding busk, the other to the side of the corselet in relation to the anterior fold of the axilla where it supports the axillary expansion of the breast. Each corselet must be made for and fitted upon the individual wearer. In my opinion this is the best system of treating the malady under consideration, but some women will not allow it in any circumstances, not because they are uncomfortable or are not relieved—they admit they are. Fashion steps in and abjures it. It seems that altering the type of stays often necessitates remaking the whole of the lady's outfit. For such cases I advise the second type, namely:

2. Corsets which are made so high that the breast cannot be impaled on any of their bones or steels whatever position the woman may assume. These corsets also require a pad to prevent undue pressure at the top of the front fastening. My objection to these corsets is that the breasts fall into V-shaped cavities and are more or less pinched between the corsets and the chest wall as well as being pushed upwards and towards each other. Further, the nipples are pressed either upwards or backwards, and I cannot suggest any means of protecting them which women will wear. I believe it to be important to protect the nipples as much as possible, considering their important nervous, vascular, and lymphatic relations.

Dangerous corsets, and those which cause most of the trouble, are neither too high nor too low to prevent the breasts from being impaled upon their bones or steels when the wearers bend forwards or laterally. Such corsets look perfectly harmless when the patient is standing and sitting, but directly the body is bent either forwards or laterally the steels and bones can be seen to dig into the breast, as in Figs. 1A, 2A, 3A, 4A. Very often a patient will come to consult a surgeon in new corsets which do not appear to be in any way connected with the changes in the breasts; but when he sees those which were in constant use, the cause and effects are often very obvious.

I would draw your attention to the relation between chronic irritation and cancer. In this connexion I have repeatedly seen cases in which the position of cancer in the breast corresponded exactly to the site of bone pressure of the stays (see Figs. 1A, 2A, 3A, 4A, which are reproduced from the actual cases of cancer of the breast seen in Figs. 1, 2, 3, 4 respectively). Were inquiry to stop here, one would imagine a strong case had been proved, and that a definite relation existed between the constant irritation from bone pressure of stays and cancer of the breast. But on investigating the matter further, I must say that I have also seen cases of cancer of the breast in which the corsets worn could not be definitely anatomically associated with the disease; for I have seen people with severe corset pressure on the lower parts of the breasts, but cancer appeared in the upper parts, where no pressure of the kind existed; and I have had patients suffering from cancer of the breast who had never worn corsets at all, and in many of these cases the cancers were situated exactly where injurious bone pressure would have been expected, that is, in the lower and outer margins of the glands. Lastly, although I have shown you cases where cancer has appeared exactly on the parts where staybones have pressed habitually, I have never seen a case of chronic traumatic mastitis from this cause develop into cancer; and it is rare to see a case of cancer in a breast which is also suffering from chronic mastitis from any cause. I do not believe that a breast suffering from chronic mastitis is very likely to be the seat of a cancer. The relation is by no means so close as that which exists between chronic superficial glossitis and squamous epithelioma, or between leucoplakia around the vulva or anus and squamous epithelioma. Hence I am not justified in assuming that because cancer appears in most cases where direct local irritation is applied, this direct local irritation is the cause. At the same time one must realize that it is very common to find staybones impaling a breast at the point where cancer exists, as seen in Cases 1, 2, 3 and 4, which are only examples of a long series of cases. Still, the relation between cancer of the breast and corset irritation cannot stand merely on the fact that the same area of the breast is affected by the two conditions. It must stand upon the evidence afforded elsewhere of a definite relation between chronic irritation and cancer, a subject which I have discussed in an article entitled Biotripsis, or Lifewear, in the BRITISH MEDICAL JOURNAL, June 12th, 1909. Ample reasons exist for insisting that patients should never wear anything that can act as a constant source of irritation, especially to epithelial tissue, subject to such varying activity as that of the mammary gland.

## AN UNUSUAL FORM OF PERINEAL HERNIA.

BY

A. G. ATKINSON, B.A.CANTAB., M.R.C.S., L.R.C.P.,

UPPER NORWOOD.

THE following case of hernia appears to be one of sufficient interest and rarity to be placed on record. The patient was a fairly well nourished premature (8 months) female child, aged 3 weeks. Nothing had been noticed to be wrong with the child until the morning on which she was admitted to the General Infirmary, Salisbury. That morning it was found that there was a large bleeding mass in the vulva:

*State on Admission.*

When taken into the hospital a few hours later, an intensely congested pyriform swelling, bleeding readily when touched, was found lying between the labia. It measured about 1½ in. in length, and 1 in. in diameter, narrowing at its attached end to a thick, short pedicle. The mass projected backwards, covering the vaginal orifice and anus. On turning it forwards, the vagina was found to be unobstructed, and the pedicle was seen emerging from the urethral orifice. A probe passed readily along the urethra, anterior to the pedicle, but could not be swept round it posteriorly. The probe passed into the bladder for a distance of about 2 in. No reduction was possible, and one could not determine whether any gut was present in the sac.

*Operation.*

The child was operated upon the same evening, and the mass was found to be a thick-walled congested sac, containing a little fluid only. A probe passed readily into the general peritoneal cavity. The sac was removed after ligature of its neck. The stump retracted into the urethra, leaving the external parts quite normal in appearance. There was no difficulty in micturition after the operation, and recovery was uninterrupted.

*Histology.*

Histological examination showed an outer layer of stratified epithelium derived either from bladder or urethra. There was an endothelial lining, presumably peritoneal, a layer of smooth muscular fibres and connective tissue intervening.

There seems little doubt that the hernia was congenital; whether it had been unnoticed by the nurse until the bleeding from abrasion of the congested mucous membrane, and increase in size from partial strangulation made it obvious, or whether it was recently extruded from the meatus, I am unable to decide. The abraded condition of the mucous membrane covering it pointed to the first alternative rather than the second. As there was no difficulty with micturition either before or after operation, one would conclude that the urethra only was involved, and not the trigone or base of the bladder.

The hernia would seem to have arisen from an abnormally deep vesico-uterine pouch, passing down between the urethra and vagina. From this the sac passed forward through the posterior wall of the urethra, being then extruded through the urinary meatus. I have been unable to find any record of a similar case. Macready (*A Treatise on Ruptures*, 1893), discussing 40 recorded cases of perineal hernia, does not include this form, but quotes a case in which the sac appears to have come down between the bladder and vagina, bulging into both cavities.

I am indebted to Mr. H. L. E. Wilks, who operated upon the child, for permission to record the case.

DURING the current winter semester (1910-11) the number of medical students in the several universities of Switzerland is as follows: Basle, 183 (175 men, 8 women); Berne, 351 (190 men, 161 women); Geneva, 584 (289 men, 295 women); Lausanne, 299 (173 men, 126 women); Zurich, 432 (272 men, 160 women); total, 1,849 (1,099 men, 750 women). Of the whole number, 655 are Swiss, and of these 45 are women.

# Memoranda:
## MEDICAL, SURGICAL, OBSTETRICAL.

### DIPHTHERIA ANTITOXIN BY THE MOUTH.

I HAVE read with much interest Dr. E. W. Goodall's paper published in the JOURNAL of February 11th. As Dr. Goodall, with his vast experience of the serum treatment of diphtheria, states that he has none of its use by mouth, the following notes of a case under my care last year may be of some interest.

G. O., a boy aged 6 years, had adenoids removed on February 12th, 1910, by a well-known London laryngologist. Every care was taken to sterilize the instruments and swabs. He was seen by the operator the following day, and by February 15th he was apparently quite well again. The next day I was sent for, as the child had sore throat, and seemed feverish. I found him with temperature 101° and some redness of the fauces. This resisted general and local treatment, and on February 18th his temperature was 105°, there was great swelling and redness of the tonsils, soft palate, and pharynx, and swelling and tenderness of the cervical glands. There was no false membrane present, and I assured the parents that the acuteness of the infection negatived diphtheria. I saw the child again that night, when his condition was unchanged, and the case appeared one of virulent septic sore throat.

The following morning (February 19th) I saw the child early. He looked worse; the temperature was still 105°, but there was definite false membrane visible on the soft palate and left tonsil. The child lived some three miles from my house, and I did not care to leave him, so I telephoned for a swab, antitoxin, and a second opinion, asking the consultant to bring with him a syringe.

Meanwhile I gave the boy 2,000 units Burroughs and Wellcome's antitoxin by the mouth, and sent along with the swab a note to Dr. Galt, Pathologist to the Stephen Ralli Memorial Laboratory, Sussex County Hospital, asking him to give an opinion, if possible, from direct examination of the smear. On the consultant's arrival he reassured the parents that the case was not diphtheria, and supported the original diagnosis. As the day went on the temperature fell, and at 2 p.m. was 102·6°. Dr. Galt reported that direct examination was highly suspicious of diphtheria. The temperature continued to fall, the child complained less of pain, swallowed more freely, and had some sleep, and at 10 p.m. the temperature was down to 98°. The result of culture was reported as pure Klebs-Loeffler bacillus, and accordingly, to "mak' siccar," another dose of 2,000 units was administered hypodermically into the back. The following day the patient coughed up the membrane but swallowed it before the nurse could secure it. There was no further pyrexia.

The bacteriological diagnosis received ample clinical support. There was for three weeks albuminuria, ocular and pharyngeal paralysis, and loss of knee-jerks, but by March 12th the throat was free from bacilli, and on March 19th I ceased to attend. On March 31st his mother telephoned to me to come out as he was "walking about like Henry Irving." I found him in the nursery with bent head and chin on breast in an attitude reminiscent of the famous tragedian, but this paresis of the posterior cervical muscles cleared up, and in the end he made a perfect recovery.

While every one will support Dr. Goodall in his advocacy of the hypodermic administration of antitoxin, there are occasions when such use may be inadvisable or impossible. In a vigorous child we have to deal with resistance from the patient, thereby taxing the heart, and in the case described above the injection was given under chloroform. A syringe may not be available for some time, or may be broken accidentally, and yet antitoxin be at hand and time saved by oral administration. Again, in mild and doubtful cases a dose of antitoxin given by the mouth may afford valuable information to the medical attendant and benefit to the patient, when hypodermic administration is considered unjustifiable or objected to by the patient or parents. The rapid improvement in this case within twelve hours of swallowing the antitoxin was preceded by three days of energetic treatment, during which the throat became worse instead of better, and to my mind the antitoxin given by the mouth had specific action.

I may add that, owing to the delay in the diagnosis, prophylactic doses of antitoxin were injected into the parents and nurses, to whom and to the patient calcium lactate was given by the mouth. There was no rash or other after-effect, but, after the very clear and able manner in which Dr. Goodall has pointed out the risk of "anaphylaxis," I for one shall be more careful in inquiring into the history before giving a prophylactic dose in future.

Brighton. DONALD HALL, M.D.Cantab.

### POINTS CONNECTED WITH THE SERUM TREATMENT OF DIPHTHERIA.

DR. GOODALL'S paper published in the BRITISH MEDICAL JOURNAL of February 11th adds an important factor to and is a timely warning of the possible dangers of the treatment, but I hope, even in view of those cases, the prophylactic treatment will not be retarded, and that Dr. Goodall himself hardly intends to convey as strong an impression as his words, "I am quite averse from using antitoxin as a prophylactic," appear to imply. I have collected during the last twelve years many notes, but only give those directly bearing on the point in question. For example, Le Play, reporting from Marfan's clinic in Paris, records that 671 prophylactic injections were given to the brothers and sisters of those admitted into the hospital, and not a single one took diphtheria. The cases taken were consecutive, all were verified by bacteriological examination repeated several times, and they came from small and crowded houses. This is surely strong presumptive evidence of the value of antitoxin as a prophylactic agent. There is no record of untoward results from these injections.

I have never seen the serum fail as a protective agent, and have repeatedly injected many brothers and sisters and contacts of patients who were not isolated, and have never had a second case.

I had a recent instructive control test. The patient had a severe attack, with much membrane; four smaller children and the mother were injected, and allowed to sleep in the same room—in fact, two children in the same bed; none took diphtheria. The father was at work when I called, and was not injected; a few days later he developed a fairly severe attack. In all cases a bacteriological examination was made.

It would be of much value if in all records of untoward results from the injection of the serum it should, if possible, be stated—

1. The source of the serum.
2. The age.
3. The amount injected.
4. The method of standardization.
5. The conditions under which it has been stored.
6. The patient's general medical history.
7. The number of bacteriological examinations made of swabs from the throat.

The dosage I believe to be a most important factor 2,000 units as a prophylactic being apparently an efficient amount. It is highly probable that larger doses may in some cases give rise to undesirable results. In the United States, for example, I find that large doses are the rule; and untoward results, such as local and glandular swellings, rashes, joint manifestations, and general toxaemia, common. I also do not find the mortality low, but this I do not consider a reliable guide as to the value of the treatment. It is possible that divergent statistics as to mortality depend not chiefly on the severity of the epidemic, but are due to the main factors underlying the administration of the serum, varying in different hospitals.

To arrive at statistics of any value, the records should state (1) the conditions previously enumerated; (2) the day of the disease when injected. It is fairly well established that serum efficiency varies directly with the day of the disease. Previously statistics were misleading, as the mortality depended so much on the number of laryngeal cases and their treatment; now it depends chiefly on the anginal cases.

I believe it may be found that early in the disease not only is a small dose—2,000 units—more effectual, but a comparatively large dose may do harm; the later the day of disease the larger the dose necessary. The amount of membrane is probably not a reliable guide as to the dose necessary, nor its non-disappearance a positive indication for increasing the dose. It is probable that early in the infection there is a diminution in the antitropic content of the blood serum, and that a large dose may prolong this stage and do much harm.

It has been shown in other infections that in the ebb stage mentioned above there is a greatly increased susceptibility to infection, which might account for the undesired results following the injection of a large dose in such cases.

GEORGE HARDWICKE, M.R.C.S.Eng., L.R.C.P.Lond.
Snainton, Yorks.

## ANAPHYLAXIS.

IN view of the deaths recorded in Dr. Goodall's most valuable paper in the JOURNAL of February 11th, the following case may be of interest. It occurred in the country, and I was the only available doctor. A second injection of antitoxin had been given in a case of diphtheria, the patient being a healthy man. Within eight hours he complained of intense itching, and when I saw him at 9 p.m. he was suffering from an intense urticaria which involved the greater part of the skin. About 11 p.m. he felt so ill that he lay on the bed (no bed clothes could be borne). Shortly after he complained of thoracic pain, apparently localized along the course of the oesophagus. At midnight he began vomiting, and until 4 a.m. he never had ten minutes' interval. At this time his pulse could only be felt at intervals, respirations were shallow and sighing, and his surface cold. Local remedies to the skin appeared useless, mustard to the epigastrium had no effect. I had never heard of a similar case, but it appeared to me to be an example of poisoning of the nerve centres, causing intense internal and external oedema. The one clear fact appeared to be that the patient would die shortly if the exhausting vomiting was not relieved. On theoretical grounds the proper drug appeared to be morphine, but I was afraid of the depressing effect on the heart. But I decided that if the drug was fatal it would be a less distressing death than the end which appeared inevitable. So I injected gr. ¼. In a few minutes the look of distress passed from the face and the thoracic pain lessened. In twenty minutes the patient was asleep. He slept four hours, and awoke weak but cured. The skin urticaria persisted slightly for some days.

Ombersley, Droitwich. MARY HAMILTON WILLIAMS.

# British Medical Association.

## CLINICAL AND SCIENTIFIC PROCEEDINGS.

### METROPOLITAN COUNTIES BRANCH: HAMPSTEAD DIVISION.

*Friday, February 10th, 1911.*

J. FORD ANDERSON, M.D., in the Chair.

### *Differential Diagnosis of the Commoner Causes of Chronic Jaundice.*

DR. P. J. CAMMIDGE read a paper on this subject, which is published at p. 486. He demonstrated a number of lantern pictures illustrating various points of his discourse.

Dr. FORD ANDERSON said that it would have been difficult to find any one more competent to give an exposition of this important subject than Dr. Cammidge. He called to mind the gradual limitation of the field of guessing, and of operative exploration, during the past few years, which advance he attributed to the work of Cammidge and others. He then called on Mr. Cairns Forsyth to open the discussion.

Mr. FORSYTH, after expressing his agreement with all that Dr. Cammidge had said in regard to the diagnosis of the various forms of obstruction to the flow of bile, turned his attention to the difficulty of knowing when to operate after the pathological diagnosis had been made. This difficulty was greatest in the so-called borderland cases. He called attention to the fact that formerly surgeons feared to operate on cases of cancer of the pancreas. Nowadays, however, it was recognized that the diagnosis of cancer might be made in cases of advanced chronic pancreatitis and in other conditions. Great relief could be secured by operation in these cases, and in his own experience much good had resulted after operating in cases which would have been left untouched formerly. In some cases the size of the swelling led to the erroneous belief that it was malignant, while at the operation it was found that the condition was inflammatory. Even in cancer relief could at times be attained by operation. Cancer of the pancreas did not always kill rapidly. It used to be held that the fatal termination took place within a few months of the detection. He had seen cases in which the disease lasted for years. He spoke of one case in which the jaundice had disappeared after cholecystenterostomy, and had only reappeared three years later, when the growth nipped the cystic duct. It is a mistake to allow these cases of obstruction to go on too long. The idea formerly held that they yielded an operative mortality of 30 per cent. was entirely wrong. It must be borne in mind that carcinoma might develop on top of gall-stone cases. He cited cases which showed that if the operation had taken place for the removal of the gall stones the cancer could have been averted. He briefly referred to the examination of the urine, faeces, and blood, and pointed out that care, skill, and practice were required. It was an analysis which every one was not capable of doing properly. But, at the same time, he was absolutely certain of the benefit which followed when this was thoroughly done. Lastly he spoke of operation on diabetics. Diabetes following on disease of the pancreas called for care. He would be very guarded in expressing an opinion in general as to the advisability of operation in these cases. He agreed with Dr. Cammidge that the risk of failure on the part of the wound to heal was more serious than the risk of sepsis. Furthermore, relapses were not infrequent.

Dr. CLAUDE TAYLOR referred to the case of a small boy whose motions were said to be white and glistening. The symptoms were those of constipation and indigestion, and he asked Dr. Cammidge whether he would attribute the shining character to the presence of crystals.

Dr. PIDCOCK asked how long Dr. Cammidge would be content to wait before operating on a patient affected with jaundice. He also asked what he considered was the best intestinal antiseptic.

Dr. FORD ANDERSON mentioned cases which he had had where the gall bladder was enormously thickened, the patient jaundiced with high fever and tenderness over the region of the gall bladder. The gall bladder was removed in one of his cases, and was found to be full of stones. The calculi had not reached the cystic or common ducts, and yet there was jaundice present. Was it right to call these cases of haematogenous jaundice caused by an infected gall bladder? and would removal of the gall bladder be indicated? Referring to chlorosis with icteric tint of skin, was it the result of damage to red blood corpuscles by septic conditions of intestinal tract? He next mentioned hereditary chronic jaundice, and asked whether these cases were also haematogenous and whether there were any means of arresting the process. In connexion with the clay-coloured stools of obstructive jaundice, he referred to the clay-coloured stools of infantilism, and remarked that treatment was disappointing in his cases. Dealing with cases of gall stones without jaundice, he mentioned a case of complete obstruction of the bowel from a large gall stone, of which he showed a cast; on the surface of this was an impression which he interpreted as being that of a Peyer's patch. This stone was removed from the small intestine by the late Sir Thomas Smith, and had not produced any symptom at all until the obstruction occurred.

Mr. FORSYTH remarked that he had seen similar cases, and described one of obstruction of the stomach by a very large stone which had not produced any symptoms of colic.

In his reply, Dr. CAMMIDGE regretted that it was impossible to form an opinion with regard to Dr. Taylor's case on the available information. The motions would have to be analysed. To Dr. Pidcock he stated that he would not wait at all when the examination and clinical evidence told him that operation was needed. In catarrhal jaundice, if the pancreatic reaction persisted after rest and other treatment for six weeks, he would operate, although he recognized that some cases cleared up spontaneously after a much longer period. Kehr had suggested this time. With regard to intestinal antiseptics, it was stated that not a single one was known which would sterilize the intestinal tract without injuring the patient by its toxic action. He found calomel useful, and also salicylate, especially of bismuth. Urotropin and its derivatives were also valuable. This drug was excreted rapidly from all the mucous surfaces. He found it wise to start with small doses, for example, 2 grains three times a day, and gradually work up to 10 grains three times a day. In some cases an idiosyncrasy against the drug existed, and unpleasant symptoms might be produced by 5 grains. He also spoke

a few words with regard to sour milk as a method of overcoming fermentation in the intestine. It was useless in putrefaction. In reply to Dr. Ford Anderson he considered the cases referred to as obstructive and not haematogenous. True haematogenous jaundice did occur but was very rare. He deprecated the removal of the gall bladder unless absolutely indicated. Acute pancreatitis might be set up in this way, and would lead to a fatal termination rapidly. With regard to chlorosis being due to sepsis, this view had been held by Andrew Clark. He certainly agreed that it probably was so in what is known as pernicious anaemia. The only suggestion he could make with regard to the hereditary cases of jaundice, in which there appeared to be an hereditary fragility of the red blood corpuscles, was that an attempt might be made to restore the isotonic balance between the corpuscles and the plasma. This might be effected by giving sea water. Infantilism was in some instances due to congenital pancreatic insufficiency. An improvement followed treatment by pancreatic extract, and was most marked in the development of sexual characters which are usually absent in these cases. The choice of the pancreatic preparation must be made with care, as great variations occurred.

# Reports of Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF OBSTETRICS.

*Thursday February 2nd, 1911.*

### CAESAREAN SECTION AND ITS ALTERNATIVES IN WOMEN WHO HAVE BEEN LONG IN LABOUR AND EXPOSED TO SEPTIC INFECTION.

A DISCUSSION on the indications for and technique of Caesarean section and its alternatives in women with contracted pelves who have been long in labour and exposed to septic infection was opened by Dr. AMAND ROUTH.

*Introduction.*

After alluding to the importance of the subject and the divergence of opinion regarding the treatment of these "suspect" cases, Dr. Routh drew attention to the difference (Table I) in the mortality of favourable or "clean" cases as compared with that of "suspect" cases—2.9 per cent. as compared with 17.3 per cent. When patients had been "previously examined," or "attempts had been made to deliver them" by other means, the mortality rose to 34.3 per cent. (22 deaths in 64 cases).

TABLE I.—*Showing the Mortality of Caesarean Operations for Contracted Pelvis where Details are Given as to Possible Infectivity (1891 to 1910).**

| | Condition. | Cases. | | Maternal Deaths. | | Percentage Mortality. | |
|---|---|---|---|---|---|---|---|
| A | "Not in labour" ... ... ... | 245 | 469 | 9 | 14 | 3.6 | 2.9 |
| B† | In labour, membranes intact ... | 224 | | 5 | | 2.2 | |
| C | In labour, membranes ruptured | 166 | 230 | 18 | 40 | 10.8 | 17.3 |
| D | Frequent examinations or attempts at delivery ... ... | 64 | | 22 | | 34.3 | |

* From Dr. Routh's collection of 1,282 cases (*Journ. Obstet. and Gyn. Brit. Emp.*, January, 1911).
† B, or "onset of labour," or "in labour but in hospital some days."

At various times Porro's Caesarean hysterectomy, symphysiotomy, pubiotomy, and more recently extraperitoneal Caesarean section had been adopted for these "suspect cases" to prevent the maternal mortality of classical Caesarean section and the fetal mortality of craniotomy. All forms of pelviotomy and all varieties of extraperitoneal Caesarean section were unsuitable in definitely septic cases.

The views of foreign obstetricians regarding treatment, as expressed at the recent International Congress at St. Petersburg, were quoted to show how divergent and often hopeless they were. Views of some British and American obstetricians recently published were also quoted, showing that, whilst some form of hysterectomy was usually advocated in septic cases, the recommendation of craniotomy as a justifiable alternative was by no means unanimous. Some foreign speakers at the International Congress had suggested that the surgical treatment of these "suspect" cases should be varied according to whether the liquor amnii (membranes being ruptured) or cervical contents were proved to be sterile or to be infected by saprophytic or by potentially virulent pathogenic micro-organisms. No British obstetrician appeared so far to have approached the subject of Caesarean operations from this point of view.

Some of the clinical and pathological effects of the various bacteria which might be present, and the remarkable divergence of opinions of foreign observers regarding the appropriate surgical treatment, were then pointed out. He hoped it would prove to be possible for a competent bacteriologist to make a rapid examination of films prepared from swabs taken from the amniotic cavity, or cervix, or upper vagina, and to furnish a report in twenty minutes, which would be so far reliable as to the presence or absence of saprophytic or virulent germs that it would enable obstetricians to vary their surgical procedure with some degree of scientific accuracy. Some investigations had been made, and he considered that, speaking generally, such reports were sufficiently reliable, for they were largely confirmed by subsequent cultures prepared from the same swabs. A possible weak point was that in a few cases two observers found streptococci in the cultures, but not in the film examinations. The main difficulty in this bacteriological investigation was to recognize the dividing line between pure saprophytic and some pathogenic organisms. Streptococci acting at first as pure saprophytes causing toxaemia (sapraemia) might later become infective, and cause true septicaemia by multiplying in the blood. Cases must therefore be treated on the basis of the most potentially virulent germs found to be present. If fluid could not be collected from the amniotic cavity, and if streptococci or other germs were found in the cervix and upper vagina, in cases where vaginal examinations had been made or forceps used, it could be safely inferred that the amniotic cavity was infected. The appropriate treatment under various conditions founded on clinical and bacteriological evidence was then considered and suggestions made as follows:

*Type 1.—Before the membranes were ruptured, if germs were found in the vagina.* Treatment: Probably classical Caesarean section would be safe after the vagina had been well douched with several pints of a 1 in 1,000 sublimate solution or iodine solution (tr. iodi ʒij to 1 pint).

*Type 2.—In labour some hours, membranes ruptured, examinations previously made, no clinical evidence of infection.* If a bacteriological examination proved the liquor amnii to be sterile, classical Caesarean section could be safely done. If germs were present, the treatment would come under 3, 4, and 5.

*Type 3.—In labour some hours, membranes ruptured, examinations previously made or attempts at delivery, some offensiveness of discharges, possibly some feverishness. Putrefactive bacteria are found present,* but no virulent pathogenic bacteria. If germs were plentiful, primary union of the uterine wound would probably fail in these cases, and, unless a utero-abdominal fistula formed, fatal peritonitis would follow. Some of the cases collected by the author,[1] which probably belonged to this group (3 deaths and 3 recoveries), were alluded to. Pelviotomy and extraperitoneal Caesarean section were probably best avoided in such cases, and Caesarean hysterectomy and craniotomy alone remained amongst recognized operations. He had great hopes, however, from Maxwell's intra-amniotic irrigation, which must dilute the number and activity of the germs, even if it did not remove them and their toxins. The irrigation might enable classical Caesarean section to be done with safety in these cases of saprophytic infection. If Caesarean section were not done, intra-amniotic irrigation would certainly render craniotomy safer for the mother, as the inevitable abrasions of the cervix during extraction would be less likely to result in tissue infection. He thought this method might have been found useful in some of the above cases and in many others. If Maxwell's irrigation proved ineffectual and craniotomy was impossible or undesired, Caesarean section should be performed after eventration, followed by

[1] *Journal of Obstetrics and Gynaecology of the British Empire*, January, 1911.

some variety of hysterectomy. Supravaginal amputation of the uterus with intraperitoneal treatment of the stump would in this group be the favourite method.

*Type 4.—Cases with similar conditions to No. 3*, but *pathogenic germs*, such as *Streptococcus*, *Staphylococcus aureus*, or *Pneumococcus* or *Bacillus coli*, are found.

*Type 5.—Cases where gonococci are found*, and the symptoms point to an acute or subacute gonorrhoea. Probably Maxwell's method would be ineffectual in rendering classical Caesarean section safe in these groups (4 and 5) of virulent infection. Probably also the abrasion during a craniotomy would lead to tissue infection and septicaemia in Type 4, even if the amniotic cavity were irrigated before and after the birth of the child, and the uterine cavity were also douched antiseptically after the third stage. Caesarean hysterectomy was therefore indicated.

Dr. Routh then considered the advantages and disadvantages of supravaginal amputation of the uterus with intraperitoneal and extraperitoneal treatment of the stump respectively and of panhysterectomy, and showed a table which indicated the success of subtotal hysterectomy with intraperitoneal stump in "suspect" cases compared with those treated by classical Caesarean section, the mortality of the former in 14 cases being *nil*, and of the latter in 216 cases being 40, or 18.5 per cent. In Group D of Table II the mortality of Caesarean section alone was as much as 37.9 per cent. It was pointed out also how relatively safe Porro's supravaginal hysterectomy with extraperitoneal stump had been in the years following its introduction; Dr. Routh considered that it more completely shut off the peritoneal cavity from an infected cervix or vagina than either subtotal hysterectomy with intraperitoneal stump or even than panhysterectomy as now performed. He considered Porro's operation more suited, therefore, to cases with virulent gonococcal infection, such as Cases 441 and possibly 496, and perhaps when streptococci were found.

TABLE II.—*Showing Method of Treatment* of the 230 Cases in Table I (Groups C and D) which may have been Exposed to Infection (1891 to 1910). "Suspect Cases."*

| | | Cases. | Caesarean Section Only. | Deaths. | Supravaginal Hysterectomy. Intraperitoneal Stump. | Deaths. |
|---|---|---|---|---|---|---|
| C | In labour, membranes ruptured | 166 | 158 | 18 (11.4 per cent.) | 8 | — |
| D | Frequent examinations or attempts at delivery | 64 | 58 | 22 (37.9 per cent.) | 6 | — |
| | Total ... ... | 230 | 216 | 40 (18 5 per cent.) | 14† | — |

* The early cases (1867 to 1890), where supravaginal hysterectomy with extraperitoneal treatment of the stump was the technique adopted, cannot be tabulated owing to want of sufficient details regarding the "rupture of the membrane."

† Cases 336, 358, 370, 400, 404, 405, 432, 494, 568, 713, 736, 751, 843, 1255.

Panhysterectomy was theoretically the ideal operation for cases of virulent infection, because it removed the infected cervix; but it was evident that it still left the peritoneum capable of being infected from the vagina, both during and after the operation. There was first the great difficulty — which applied also to supravaginal amputation with intraperitoneal treatment of the stump —of preventing peritoneal infection during the preliminary Caesarean section. No means was known by which the uterus could be removed completely, without a preliminary Caesarean section, with such rapidity that the child could survive, even if the uterine vessels were divided as late as possible in the operation, as in Doyen's technique. Peritoneal infection might be prevented by eventration before incision, temporary closing of the abdominal incision, and careful packing round the neck of the uterus. The uterine incision should be fundal (transverse or sagittal). After extraction of the child this incision should be accurately closed, and the uterine peritoneum carefully cleansed before the abdomen is reopened to remove the uterus. The treatment of the vagina before and after the hysterectomy and of the pelvic peritoneum was then discussed, and it was advised that the vagina should be swabbed freely with tincture of iodine and the cervix sewn across per vaginam before the operation, as suggested by Spencer. A safe technique for panhysterectomy in these virulently infected cases would save many lives, for that operation would then be chosen instead of either form of subtotal hysterectomy. He concluded by saying that he was not without hope that a rapid bacteriological examination of films prepared from the liquor amnii or cervical contents in "suspect" cases, when the membranes were ruptured, would enable the treatment of these cases to be put on a more scientific basis. If so, classical Caesarean section would be performed with perfect security if the fluid were sterile; Caesarean section, preceded by some variety or some evolution of Maxwell's intra-amniotic irrigation, and by eventration of the uterus, might be considered safe if non-pathogenic germs were found; and a radical hysterectomy would be considered desirable if pathogenic micro-organisms were discovered. It was possible, also, that some such scientific basis might do away with the need for craniotomy with living children in well-organized obstetric clinics, but craniotomy would still be required in general practice where prompt bacteriological investigation and special technical experience might not be forthcoming.

Dr. HASTINGS TWEEDY said the discussion which would follow Dr. Routh's communication was bound to modify their views, and he trusted it would have the result of relegating craniotomy on the living child to its place amongst the obsolete barbarities of the past. It was melancholy reading to find this procedure still advocated by some of the most skilled operators and ablest teachers at home and abroad. Could it be urged that it exercised a curative effect on the maternal sepsis, then a plausible, but in his opinion an insufficient, argument would be forthcoming to justify it; but no such suggestion was tenable, and they were forced to the conclusion that its popularity resulted from a desire to make Caesarean section and its allied operations appear miraculously successful in the hands of these great operators. For his part he was sick of Caesarean section statistics. The technique of the operation no longer differed in the hands of good operators; should a patient die, her death would not be due to the operation but to the complications of labour. For this reason he trusted Dr. Routh would pardon him for finding fault with his manner of tabulating his statistics. The high death-rate under C and D should not be attributed to Caesarean section, for a similar death-rate would most likely have followed craniotomy. In suspect cases where bacteria could be demonstrated, hysterotomy offered many advantages over Caesarean section. The objections to it were unpractical. The operation was very easy. The incision passed through the thinned-out cervix and extended almost down to the external os, through tissue relatively free from blood vessels and lymphatics. Should suppuration follow, the pus would find its way into the vagina and would not pour into the peritoneal cavity. The weakened scar due to suppurative non-union would be placed so near the external os that the normal course of subsequent pregnancy would not be endangered by it; adhesions between intestines and scar could not take place. But under favourable conditions, and particularly with the os fully open, they possessed in pubiotomy a still better operation. From an experience of nine such operations he could say it was easier of performance than craniotomy. He was acquainted with no other operation where asepsis could be assured in so simple a manner. Patients walked on the seventeenth day, and suffered no pain or inconvenience at any time after the operation. The complications of which they had heard so much—namely, haemorrhage and vaginal lacerations—were entirely due to carelessness and faulty technique. It did not pretend to cure sepsis, and should sepsis be present before its performance the patient might die in spite of it, and thus afford its detractors a favourable opportunity to compile statistics. He asked them not to dwell too much on foreign statistics—to accept the experience of their own countrymen until they found that they were not reliable.

Dr. BRIGGS said he did not believe that bacteriology had arrived at the stage when it could give an intimation as to where a local infection would stop. Most of the infections were and remained local, but some were general. He believed that in suspect cases there would be found a series of gross errors. Many suspect cases, after an unimpaired convalescence, were classed as clean cases. It was quite true that many cases might be saved where the organisms were local, and quite possible that those operators who did not operate upon suspect cases were refusing to operate upon cases which were entirely local. There were many kinds of suspect cases. He would like to hear the opinion of general pathologists on some of the subjects in that debate. He was inclined to adhere to his original Caesarean section attitude, and to limit himself to clean cases and refuse suspect cases. He questioned whether Dr. Routh had exhibited the darkest side of the results in the suspect cases. He himself was still a strong believer in the induction of premature labour. He knew of many cases upon which Caesarean section might have been performed satisfactorily treated by the induction of premature labour.

Dr. EDGE said the scope of Caesarean section should be much enlarged. It was the straightest, the least mutilating, and, apart from sepsis, the least dangerous of all the methods of delivery in cases of contracted pelvis. The question was one of avoidance of sepsis, which at first was confined to the vagina and the lower cervix, and which, when introduced into the uterus, was generally kept at bay for some hours by the membranes covering the uterine wall. The sepsis of ordinary puerperal fever was almost always introduced after the raw surface of the uterus was exposed by the separation of the placenta and membranes. He gave details of three instances in which he performed Caesarean section in suspect cases. In doubtful cases he would be inclined not to do hysterectomy, but ordinary Caesarean section. Since hearing of Dr. Maxwell's irrigation he would use that first. He would then eventrate the uterus and protect both the abdominal incision and the incision in the uterine wall. He would then deliver the child. If there could be more command of the sepsis, safety would lie in the future in what might be called normal Caesarean section without hysterectomy. That, possibly with drainage of Douglas's pouch, unless the case were certainly septic, would have more and more success. If the uterus were taken away, he had always performed the subtotal hysterectomy, because it was so simple. Still, if hysterectomy were necessary, he believed that ultimately Dr. Herbert Spencer's panhysterectomy would almost be universally adopted. Finally, he intended in future to endeavour to push the placenta and membrane into the vagina—that is; to conduct the third stage as much as possible as in a normal labour, *per vias naturales*.

Dr. ARNOLD LEA said that at St. Mary's Hospital cases were frequently admitted which had been many hours in labour, and had been subjected to many examinations by midwives and doctors, the latter after having used forceps. These he regarded as "suspect" cases. A temperature of 100° F. or 101° F., and some quickening of the pulse, had not been regarded as contraindicating Caesarean section. In 16 cases of this "suspect" type in which operation was done during labour, after rupture of the membranes, and after interference by forceps, all but one recovered. In the last seven years none of the cases he had had of that type had died. The morbidity was 30 per cent. These results seemed to indicate that even after rupture of membranes for many hours, with interference, many cases escaped serious infection. If such cases were sent to hospital earlier the results would be much better. Much had been hoped for from bacteriological investigation of the amniotic fluid, and he believed that the organisms could be detected in "film" preparations, either by introducing a tube into the cervix and obtaining a specimen of the amniotic fluid, or by examining the cervical secretion itself. In hospital practice a report could be obtained in half an hour. The chief organisms found in puerperal infection were streptococci, staphylococci, *Bacterium coli*, and occasionally the gonococcus. In addition, anaërobic bacteria were often present. For present purposes these organisms might be present in the passages of a healthy woman, and there was not as yet any rapid method of distinguishing between saprophytic and pathogenic bacteria. The discovery of streptococci in the amniotic fluid or the cervix in abundance would be presumptive evidence of pathogenicity. He had no experience of the suprasymphysial method of Caesarean section, but the transverse incision was often valuable. He referred to cases of diffuse cellulitis following the transverse operation. In cases of obvious infection complete abdominal hysterectomy was the only safe plan in his opinion.

Dr. HERBERT SPENCER asked if one was to conclude that a patient was exposed to infection because the membranes were ruptured and examinations had been made? If that were so, many had been operating upon "suspect" cases for years without knowing it, and every woman in labour ought to become infected, because she always had the membranes ruptured, and nearly always was submitted to internal examination. If a woman had not been in labour a long time and the membranes had been ruptured, he was just as willing to operate by conservative Caesarean section as if she were not in labour and the membranes were intact, provided she had been examined with due precaution. How was one to know that the cases were infected? He would pay attention to the patient's general condition, rather than to the fact that the temperature was 100° F.; that was often reached in a normal labour, with an aseptic recovery. Bacteriological investigation might be important in the future, but in the present state of knowledge he would not trust it very much. What should be done in seriously infected cases? He meant such cases as those from the slums of a large city where two or three strong doctors had taken a turn at a case with contracted pelvis, and perhaps killed or mutilated the child. In these gravely infected cases Caesarean section should not be performed. Where forceps had been applied the child's life was in many cases seriously compromised. It was wrong not to do craniotomy in such a case. If the uterus were torn much, he would supplement the craniotomy by vaginal hysterectomy. With regard to symphysiotomy, pubiotomy, and extraperitoneal Caesarean section, he did not think they should be performed in cases of infection. With regard to extraperitoneal Caesarean section, Dr. Hastings Tweedy had given a highly coloured description of the operation in aseptic cases, with which this discussion was not concerned, and the procedure seemed to be so favourable, in Dr. Tweedy's opinion, that one would almost conclude it was the future lot of women to be delivered by extraperitoneal Caesarean section. Yet, on looking at the literature, it would be found that there were cases of rupture of the bladder and peritoneum, and one in which the plexus of veins had bled so furiously that the operator (Döderlein) had had to abandon the operation for the classical Caesarean section. With regard to gonorrhoea, he thought it would be best, if the cervix was probably infected, to remove the whole uterus. For the cases of obstructing fibroids and for cases of cancer where labour was not advanced, he thought Caesarean section with abdominal hysterectomy should be preferred. For advanced cases of cancer which were not operable, he thought the old Porro's operation was the most suitable. The remaining question was as to how to avoid infection of the peritoneum and abdominal wound when doing Caesarean section in suspected cases. Dr. Edge had made some valuable suggestions which should be borne in mind. Precautions should be taken against infecting the abdominal wound, but he did not think it was practicable or necessary to disinfect a putrid amniotic cavity. If the whole of the infected tissues were removed by total abdominal hysterectomy, it did not matter much if the healthy uterine peritoneum was temporarily soiled.

Dr. THIÉLE said that even where the labour had lasted for some time and the amniotic cavity had been exposed to the cervical and vaginal infection for hours, it was very rarely that one could find pathogenic organisms spreading in very large quantity; even in a very intense infection the number of organisms might not be at all numerous. Therefore, from the bacteriological point of view, there remained much to be desired in regard to detecting the nature and virulence of infection in possible cases of this sort.

Dr. LEWERS pointed out that Dr. Routh's Table I covered a period of twenty years, and showed a mortality in suspect cases of 17 per cent., and a mortality in other cases of nearly 3 per cent. Probably many of the cases in which the mortality was 17 per cent. belonged to the

earlier ten years of that period, and the figures were likely to be much better in the second period, owing both to the improved technique and to more complete asepsis. He could remember the time when in surgical practice generally instruments were not boiled; this was not much more than twenty years ago, if, indeed, it was quite so long. He confessed he would be unwilling to wash out the uterus before the operation. He doubted whether, with the fetus in it, one could wash out sufficiently to get rid of everything which should be removed, and there was danger in doing anything which could be avoided if Caesarean section was going to be done afterwards. The risk of carrying in something, in his opinion, was much greater than the chance of completely washing out septic material if present.

Dr. ERNEST SHAW said that in his routine work he had divided his cases into two main types—(1) those in which there was some chronic infection of the cervix, uterus, and appendages; (2) cases of infection after childbirth or abortion. In the first group he had been concerned chiefly with the detection of gonococci, and while examining films and cultures for this purpose had been struck by the abundance and variety of the bacteria in the cervix and vagina, and also by the common occurrence in the cervical canal of the white staphylococcus. The cases which he had been able to demonstrate to his own satisfaction as septicaemia had been those in which streptococci were present in the blood. In some of the cases which he had investigated he had been told that consultants had diagnosed septicaemia on clinical data; he had found they were mostly free from organisms in the blood, therefore he regarded them as simply examples of sapraemia. He concluded from that that it was difficult to ascertain the degree of infection from the clinical signs—that is, whether the infection was local or general, a most important point for prognosis. He suggested that as the streptococcus was the most common organism found, each case should be treated as one of streptococcal infection until the contrary was proved. He believed that the injection of polyvalent antistreptococcic serum did good in such cases. If he obtained a pure culture he also tried the use of vaccines. He was convinced they did no harm, and had seen some cases do well under this treatment. If the growth were mixed, he subcultured the predominant organism and prepared a vaccine from this. In cases of labour infection, he suggested that the vaccine should be made from the organism grown from the patient either from the blood or cervix. When Caesarean section was done he did not see why some polyvalent antistreptococcic serum should not be put into the uterus, into the vagina, and into the peritoneum. If the uterus were removed why should not some serum be applied to the stump? Some could also be projected down the vagina, and some could even be used subcutaneously.

Dr. W. J. GOW said there had been some confusion between infection of the patient and infection of the liquor amnii. When discussing the treatment of a certain kind of case it was better to distinguish between those two groups. What he would say applied to infection of the amniotic fluid. Obviously, if a patient was infected with streptococci during delivery, she ran risks of dying of puerperal fever, whether she were delivered by Caesarean section or by any other method. But there were cases in which the patient was free from infection constitutionally, and yet the liquor amnii contained pathogenic organisms which, when ordinary Caesarean section was done, would inevitably escape into the peritoneal cavity. In the cases which Dr. Routh called "suspect," it was the liquor amnii which was suspect, not the patient. Forty of his own cases were not in labour, or were only in the first stage of labour, and the membranes were either unruptured or only just ruptured. There were no deaths. There were 8 cases in which the membranes had been ruptured for some time, and of those one died. In this case the membranes had been ruptured forty-eight hours, and several attempts had been made to deliver with forceps before she came to hospital. She died on the fifth day, and a staphylococcus was cultivated from the peritoneal lymph. The difficulty was to know on what grounds one should regard the liquor amnii as suspect. It would be agreed that suspicion was justified when the membranes had been long ruptured and there had been several attempts at instrumental delivery, especially the latter. There were many organisms in the vagina which, when introduced into the liquor amnii, rapidly multiplied, and were very undesirable inhabitants of the peritoneum. How should those cases be dealt with? Some could best be dealt with by craniotomy, especially where the child's life had either been already lost, or was seriously embarrassed by numerous attempts at forceps delivery. The other alternatives were abdominal hysterectomy or conservative Caesarean section, special efforts being made in the latter case to avoid peritoneal infection. Conservative Caesarean section would probably give quite good results in the future if the following precautions were taken: Where attempts had been made some hours before to deliver by forceps, it would be well, where practicable, to irrigate the uterine cavity, as suggested by Dr. Maxwell (this was not practicable when the head was jammed in the lower uterine segment, or in the pelvic brim), then to eviscerate the uterus, protecting the edges of the uterine wound with a sterile towel or sterile gauze, and taking care that none of the liquor amnii got into the peritoneal cavity. Frequently the changes in the liquor amnii were manifested by a highly putrefactive odour. It was the peritonitis which killed the patient, and the peritonitis was set up by the infected liquor amnii gaining admission into the abdominal cavity.

The debate was here adjourned.

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## SECTION OF OTOLOGY.

*Friday, February 17th, 1911.*

Mr. ARTHUR CHEATLE, President, in the Chair.

### *Malignant Disease of Naso-pharynx.*

DR. EDWARD LAW reported the termination of a case of malignant disease originating in the region of the Eustachian tube, early symptoms of which were deafness and discomfort in the ear.

Mr. WILFRED TROTTER gave a brief summary of the principal features of malignant disease of the lateral wall of the naso-pharynx as exemplified in 8 cases which he had operated upon, including Dr. Law's patient. In 5 or 6 of the cases the tumour was an endothelioma originating about the Eustachian tube, and in them the symptomatology was remarkably uniform. (1) Pain was the first symptom, and lasted some months. The diagnosis at this stage was generally trigeminal neuralgia. (2) Deafness of the type produced by Eustachian obstruction, which in some instances could be temporarily relieved by means of the Eustachian catheter. Failure to give relief had led to further examination, and eventually to the discovery of the disease. (3) An abnormality of the soft palate was sooner or later noticeable; this was raised, but could not be relaxed on the affected side, owing, no doubt, to infiltration of the levator palati. (4) In the later stages oedema of the soft palate and adjacent pharyngeal walls appeared. (5) In none of these cases was nasal obstruction a striking symptom. Dealing with the surgical treatment, Mr. Trotter said that access to the disease was gained by an osteo-plastic operation, the essence of which was reflection of the upper jaw and malar bone in a flap. The base of the skull and lateral wall of the naso-pharynx were thus brought well into view. In some cases it had been necessary to tie the internal or common carotid artery. The patients usually recovered well from the operation, but none had survived without recurrence of the disease longer than fifteen months, a circumstance which emphasized the importance of early diagnosis.

Mr. TILLEY recorded his experiences of similar cases.

### *Cases.*

Dr. H. J. DAVIS showed 3 cases: (1) Caries and necrosis of the temporal parietal and occipital bones following mastoiditis due to scarlet fever in a girl aged 5; operation; recovery. (2) A case of extradural abscess of the posterior fossa tracking through the jugular foramen into the neck; sloughing of middle third of internal jugular vein; operation; recovery. (3) A case of acute vertigo with repeated falls, always to the left, during the last two months. He asked for an expression of opinion as to whether the disease was labyrinthine, intracranial, or due to hysteria. The patient had had mastoid suppuration, complicated by the presence of nystagmus, giddiness, headache, epileptiform fits, and complete left hemianaesthesia. The "caloric reactions" were negative on the left side, but positive on

the right side, and this pointed to an organic lesion. The case was discussed by several members, who agreed that the evidence pointed to an organic lesion occurring in a so-called hysterical patient.

Mr. Sydney Scott reported a case of fistula of the superior semicircular canal on the left side; bilateral radical mastoid operation; instrumental exploration of the left vestibule; total "vestibular ablation reactions" on left side. One of the points of interest was the evidence which indicated "localization of disease without involvement of the cochlea."

Dr. Kelson exhibited a patient with a very unusual swelling in the tympanum.

Dr. Dan McKenzie showed a boy upon whom the complete mastoid operation had been performed eighteen months previously, the bone forming the so-called facial spur having remained bare ever since that time.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

Section of State Medicine.

*Friday, February 3rd, 1911.*

Dr. E. J. McWeeney, President, in the Chair.

*Medical Inspection of Schools.*

Mr. Story read a paper on medical inspection of schools and scholars, in which he advocated the extension of the recent Education Act to Ireland, more especially Section 13 of the Education (Administrative Provisions) Act of 1907. The paper contained brief abstracts of the regulations and directions issued by the Education Board, and the results of inspection and treatment as published in the first report of the Chief Medical Officer of the Board. The educational arrangements in Ireland differed so much from those in England and Wales that the Act would require considerable modification before it could be applied to Ireland; but the necessity was urgent, as could be inferred from the report of the Dublin Sanitary Association recently published in the daily press. The Act referred solely to elementary schools, but Mr. Story contended that in Ireland the intermediate schools were very nearly as much in need of medical inspection as the national schools.

The President said it must be borne in mind that there was not the same machinery for the management of schools in Ireland as in England. He thought medical inspectors for the schools should be introduced as soon as possible. He had often remarked the extreme frequency of vermin amongst the poorer classes, which vermin he considered gave entrance to staphylococcal infection. As in ringworm this should be treated not by a single bath or towel for a number of children, but by a separate bath and towel for each child.

Dr. Boyd Barrett said that in England the local authorities dealt with their local schools. The Irish National Board acted as a trustee, and had no power to spend its money on medical inspectors. He laid great stress upon the fact that children were compelled to attend schools, yet no precaution was taken to prevent the spread of infectious diseases amongst them.

Dr. Donnelly said that children or their guardians should be instructed as to the necessity for cleanliness. In a number of cases parents were not aware of the condition of their children's head, which was a decided source of danger with regard to tuberculosis. He said that children were compelled to go to school under penalty, and he considered it a cruelty that they were not protected from infectious diseases. Mr. Story had shown the small amount of money that was necessary for medical inspectors, and if the matter were put fairly before the public he thought there would be no difficulty in getting this small rate.

Dr. Kirkpatrick said the schools derived their grant from the National Board of Education on the condition that the regulations of the Board were properly carried out, and if the school failed to do so it should be deprived of its grant. It was a tyrannous thing that a clean and healthy child should be compelled to go to a school where half the children were suffering from infectious diseases. He thought that if compulsory inspection was not adopted compulsory education should be stopped.

Sir John Moore said that eleven years ago he sat on the Local Government Commission to inquire into the health of Dublin. As one of the commissioners it was his duty to visit the primary schools in Dublin. He then had no idea that such dirt and insanitary surroundings existed in their schools. The Commission made very strong recommendations, which turned out to be practically a dead letter. The Board of National Education was wrongly constituted. There should be a fair representation of medical men on the Board. It was most unfair that there should be no provision for safeguarding the condition of the children who went to the primary schools. These primary schools were hotbeds of infection, especially whooping-cough and measles, and neither of these diseases was notifiable.

Dr. McVittie said a great deal had been said about infectious diseases which caused some benefit by giving immunity from these diseases in adult life. He did not consider them so serious as heart diseases. A number of children with feeble hearts were driven to school by a compulsory Act. If their object was to be gained, it was necessary for the medical profession to agitate persistently and constantly.

Dr. Cox said if the people did not move in the matter it was because they were ignorant, and as the profession claimed to be better educated than the people, it must draw attention to the defects under which their children laboured at the present day. In America dirty children were not allowed into a public school.

Mr. Story replied.

## BATH CLINICAL SOCIETY.

At a meeting held on Friday, February 3rd, 1911, Mr. F. Lace, President, in the chair, Dr. R. Waterhouse showed specimens of the *Thymus gland* weighing 24 grams, removed from a child aged 9 months, who died suddenly whilst being bathed; and the thymus gland of a child aged 3 months, weighing 34 grams, who died from asphyxia from pressure on the trachea, breathing having been embarrassed since birth; tracheotomy gave no relief.

Dr. King Martyn read a paper on the *Use of the calcium salts*. He gave a summary of the known physiological effects of calcium on the tissues and blood and the evidence of the regulation of calcium metabolism by the thyroid gland, the intolerance of iodides in myxoedema being due possibly to the liberation of thyroid secretion on the cerebral circulation. He advanced the theory that sporadic goitre was due to compensatory hypertrophy of the thyroid gland to cope with added calcium metabolism induced by drinking certain limestone waters. The treatment of rheumatoid arthritis by thyroid extract was essentially the same as that by iodides. He pointed out that one of the benefits of cod-liver oil in rickets was due to its forming a soluble soap with calcium. As regards calcium increasing the coagulation of blood, clinical experience seemed to be contrary to recent experimental work. He instanced as morbid conditions in which he had found the administration of calcium beneficial—haemophilia, epistaxis, chronic sneezing, chilblains, certain headaches, orthostatic albuminuria, and Henoch's purpura. He pointed out the relation of strontium to calcium and its success where the latter salt had failed. He ascribed the failure of calcium to produce benefit in some cases either to non-absorption or to its not being given over sufficiently prolonged periods. Dr. King Martyn said the question of calcium metabolism was of great interest with regard to the Bath waters. In these calcium was present only as the sulphate and carbonate and in small quantities. Hence it was probably not absorbed at all, or in such minute quantities as to do no harm. He had never seen thrombosis or other phenomena which might be due to calcium absorption occur during the drinking of the waters. If, however, excretion of calcium in the body were desired iodides could be taken with the mineral water. This was a valuable method of administration, preventing iodism. He found the best preparations of calcium to be the lactate, the chloride, and the iodide, and mentioned a case of diplopism lasting twelve hours and a case of "dualism" whilst taking the chloride, which passed off without bad effects. Dr. J. Lindsay read a paper entitled *Bilious headaches*, illustrating it by a case of a man aged 51, in which these headaches recurred at regular intervals.

## OXFORD MEDICAL SOCIETY.

AT a meeting held on February 10th, Mr. WHITELOCKE, President, in the chair, Dr. A. L. ORMEROD brought forward a scheme for the *Voluntary notification of cases of tuberculosis*. He suggested that the doctor in attendance and the patient should each sign the form of notification, and such notification should give permission for the medical officer of health or his deputy to visit the house, examine contacts, and give general advice. That the doctor for each notification should receive a fee of 2s. 6d. That each patient should only be notified once, and that such notification should only be made after confirmation of the diagnosis by a bacteriological or physiological test. If the notification were signed by both patient and doctor, the responsibility of the doctors became less. The reason for notification once only is obvious when it is considered that in the interests of public health each case must be kept under observation until death, and this in itself would prevent the hasty notification of doubtful cases. Dr. W. D. STURROCK read a paper on some recent work on *Cancer*. Having given a definition of an established cancer as a parasite rooted in its host, he outlined the broad divisions of work done on the subject. While work on metabolism was of great value, he had specially chosen for review the transplantation work done by the Cancer Research Fund workers and others. The main points brought out were that a successful transplantation needed a special reaction on the part of the connective tissue, which had to provide a stroma for the support of the growing graft; consequently the absence of such reaction made a graft powerless, and was an expression of immunity. Such immunity could be obtained experimentally, and suggested the possibility of similar immunity being established towards secondary growths, which were somewhat analogous to transplanted growths. On the other hand, it appeared that too great a response of the connective tissue might strangle an established growth, and this again suggested a possible means of attack upon the primary growth itself by stimulation of the connective tissue.

## UNITED SERVICES MEDICAL SOCIETY.

AT a meeting held on February 8th a paper was read, communicated by Fleet Surgeon R. MUNDAY, R.N., of H.M.S. *Hyacinth*, East Indies Station, entitled *Different Types of Beri-beri occurring in Naval Ships cruising in the Persian Gulf during 1909-1910*. The number of men serving in the Gulf during 1909 was more than double that of any preceding year of modern times, and the service was very arduous. No leave or exercise could be given to the men, and the supply of fresh provisions was very limited and of poor quality. The number of Asiatics serving in the ships of the Persian Gulf numbered 182 in 1909, and during 1910 317—a very considerable increase. In 1909, 19 cases of beri-beri, with 7 deaths, appeared among Asiatics, whose staple diet was white, highly-polished, over-milled, uncured rice, and as the result of substituting cured rice for that, increasing the nitrogenous part of the diet, and instituting many well-thought-out precautions, dietetic and otherwise, only 2 cases, and those doubtful ones, occurred in 1910. Now all this was most satisfactory, but the extraordinary part was to follow, for, although no Europeans were attacked in 1909, when the epidemic among the Asiatics occurred, in 1910 17 cases of beri-beri took place among them, while, with the exceptions before stated, the Asiatics escaped. From the clinical evidence, which was exhaustively discussed in the paper, there could be no reasonable doubt that all these 17 cases should be classed as beri-beri. All classes were affected. Uncured over-milled rice did not form part of their diet—indeed, in many of the cases no rice was eaten; and Fleet Surgeon Munday submitted the apparently paradoxical opinion that when beri-beri occurred in the Asiatic rice-eater the cause lay in the poverty of his rice, which had lost by over-milling certain necessary ingredients, and that when beri-beri occurred in the European *non-rice-eater* the cause lay, not in the rice (which was not his staple food), but in the deficiency of some other article of food, which, or portions of which, were vital to the proper nutrition of his nervous system; that this lack might be brought about by inability to assimilate the necessary portions, even where present in the diet, through maldigestion caused by inferior quality of food, nervous depression due to climate, monotony of service, lack of exercise, etc. The paper was discussed by Fleet-Surgeon HOME and Staff-Surgeon REES, and the debate was wound up by the PRESIDENT (Sir David Bruce), who expressed a strong hope that over-milled rice would be interdicted for the future. While expecting that the work of Fraser and Stanton and other observers would hold good, he could not help thinking that the explanation they offered was almost too simple. For his own part, he thought that probably some peculiar protein body had disappeared from the over-milled rice; what it was no one could yet tell, and the true reason would probably be found later. This protein body might be absent from the diet of Europeans, as in the case of the European outbreak described in the paper. After some further remarks he proposed a vote of thanks to the author of the paper, which was carried by acclamation.

## ASSOCIATION OF REGISTERED MEDICAL WOMEN.

A MEETING held on February 7th, Mrs. DICKINSON BERRY, President, in the chair, was devoted to the exhibition of clinical cases. The following were among the cases and specimens shown:—Miss ALDRICH-BLAKE: (1) A woman from whom three weeks previously she had removed a *Sarcoma in connexion with a rib*. Portions of the rib above and below were removed with it, and a large flap was raised from over the scapular region, and slipped down. Eight weeks before the operation the affected rib had undergone a spontaneous fracture, and a swelling had appeared over it four weeks later. The growth was on both sides of the rib, and was found to be a large oval-celled sarcoma. (2) A girl of 19, with *Swelling of the tibia* for two years, pain and limping for six months. The tibia was bowed and thickened, and there was tenderness over it. No evidence of syphilis found elsewhere. The condition was improving under treatment with potassium iodide. (3) A girl of 22, with a large painless swelling in the left upper abdomen. No symptoms were present except loss of appetite. This was thought to be probably a hydatid of the spleen, but exploration showed it to be *Sarcoma of the left kidney*. No right kidney could be felt. The girl was very thin, but felt well, and her appetite had improved since the operation two months previously. (4) A girl of 17, upon whom a *Decompression trephining* had been performed a year previously for the relief of severe headache. She suffered then from headache, vomiting, and optic neuritis. Blindness came on rapidly, and it was only some weeks after she became blind that permission was given to operate. For some months a large hernia cerebri was present. This gradually flattened out, and the girl's sight has rapidly improved. Mrs. SAVILL showed two cases, one of *Lichen plano-pilaris* in a woman eight months pregnant; the other a severe case of *Secondary syphilis* that had resisted all oral and inunction treatment and had responded rapidly to injections of mercandol and later of grey oil. Miss ANDERSON and Miss STONEY showed a patient from whom had been removed an *Epithelioma of the scalp*. The patient had since twice suffered from superficial ulceration in the scar, that had readily healed under treatment with *x* rays. Miss THORNE showed a patient upon whom she had performed a *Posterior gastro-enterostomy* for the relief of constant vomiting. There had been marked emaciation and a lump in the region of the pylorus and frequent passage of blood in the stools. At the operation several scars of ulcers were seen, as well as marked thickening of the stomach walls in the region of the pylorus. Since the operation two years ago the patient had become strong and well, and the pyloric thickening had totally disappeared. Mrs. SCHARLIEB showed two specimens: (1) A *Columnar carcinoma of the rectum*, removed by the abdomino-perineal method from a woman from whom she had removed double papillomatous ovarian cysts six and a half years before. (2) A *Sinus lined partly by intestinal mucous membrane*, removed from a patient who had had several operations for chronic peritonitis complicated by sinuses and faecal fistulae.

# Reviews.

## CRIME AND CRIMINALS.

Much has been written about our prison system—not a little of it by ex-convicts and humanitarians whose voices are united in a chorus of unreserved condemnation. It is therefore with particular interest that we turn to *Crime and Criminals, 1876–1910*,[1] by Dr. R. F. Quinton, for here we have the question discussed from a different standpoint by a man to whose opinions an experience of thirty-four years as a medical officer and as governor gives special weight. Few have had such opportunities of becoming intimately acquainted with the inmates of our prisons and with the details of the working and the general results of the system. During the period covered by the book a very great change has taken place both in the laws relating to prisoners and in the administration of prisons. When Dr. Quinton joined the prison service as assistant surgeon, local prisons were under the control of the county and borough authorities, who could manage them as they saw fit. One of the results of this was that crime was most frequent in those districts where lenient prison treatment was known to be the rule. The year 1878, however, witnessed a far-reaching change, all the prisons in England being transferred to the direct superintendence of the Home Office. It is a curious illustration of the inborn conservatism of the British mind that this measure at first was regarded with considerable suspicion, not only by the classes directly concerned, but even by respectable law-abiding citizens. So deep rooted was the notion that centralization meant tyranny, that prison doctors were rudely treated by coroners' juries whenever a death in prison occurred, no matter what the cause. Public opinion, however, before long accepted the change which had at first been denounced as revolutionary.

One result of the centralization of prison control has been the reduction of the total number of prisons in the country. Dr. Quinton shows that for the past thirty years both the total number and the number of criminals in proportion to the general population has been steadily decreasing. This is most marked in the case of convicts. Thus in 1880, when the population was 25 708,666, there was a daily average of 10,299 persons confined in convict prisons. In 1909, with a population of 35 348,780, the daily average number of convicts was only 3,106. Though this enormous reduction may be slightly discounted by the shorter sentences customary nowadays, and by the different treatment meted out to first offenders and to youthful criminals, these figures undoubtedly show that crime is not "one of the flourishing industries of the country at the present time." Not only is there a striking difference in the numbers, but the criminal type has apparently undergone a radical change. Thirty years ago the average convict was a brutal savage, absolutely uneducated and destitute even of rudimentary self-control; more often nowadays the habitual criminal is a weakly nervous, high-strung creature. The work required of prisoners has also changed very much since Dr Quinton entered the service. In his early days the treadwheel was still the recognized machine for first class hard labour, whilst hemp picking and other unproductive forms of labour were general. The prisoner was made to feel that the work which he must perform was absolutely useless and profitless. These things now belong to the past, and the modern criminal who falls into the hands of the law is set to all kinds of useful work which is only restricted by considerations of fair play to outside free labour. In fact the root idea twenty-five years ago was the punishment of the criminal; the modern ideal is his reformation. He is segregated from the community for a given time as a safeguard to the public, and whilst he remains under detention attempts are made to teach him the error of his ways, and by accustoming him to some profitable sort of work to give him a chance to lead an honest life when set at liberty. All the latest Acts are inspired by this ideal. A long term of imprisonment, followed by a lengthy period of "preventive detention," is employed as a last resource of justice, and is only put into force, under the Act of 1908, when a prisoner, by being repeatedly convicted, shows himself or herself incapable of improvement. Mr. Churchill's new rules, which will come into force on May 1st, will do much to mitigate the lot of such prisoners. As nearly all convicts, as distinguished from prisoners under short sentences for minor offences, are what we may be allowed to call "chronics," and never at large for very long, it is hoped gradually to stifle out habitual criminals by locking them up in houses of detention and so preventing them from pursuing their unlawful activities. In this hope lies the explanation of the imprisonment of the "Dartmoor shepherd," whom a tenderness, to which a rough world is unaccustomed in the Home Office, tore from the pastoral pursuits in which his gentle soul found contentment. We may quote the following story told by Dr. Quinton as showing the true significance of apparently severe sentences for trifling offences:

> At one prison with which I was connected during my service a warder overheard the following illustrative conversation between two prisoners in adjoining cells:
>
> A. What are you in for?
> B. Forty thousand pounds! What are *you* in for?
> A. Six b—— heggs! Seven days hard—more than a day a hegg.

But A. was a person who *lived* by thieving, and, on his record, a month per egg might easily have been his lot before a more discriminating tribunal.

But it is in the treatment of the youthful offender, between the ages of 16 and 21, that the modern system looks to minimize crime in this country. Dr. Quinton has much to say about the Borstal system, and is evidently a sincere believer in it and its possibilities. Many judicial authorities hesitate to sentence youths to a term sufficiently long to enable them to undergo the treatment, but so far the system appears to have been productive of good results, and with a widening of its application should go far towards reclaiming the youthful criminal before he has gone too far. In fact, so sanguine are the supporters of this system of the effects it will produce that a cynic might say that it would be worth the while of a poor boy to commit crime for the sake of the educational chances he will get under the Borstal system. Dr. Quinton does not refer to a weak point in the Borstal system, which is very clearly brought out by a record entitled "How I Spent my Life in Prison: By a Juvenile Adult," quoted in Mr. Thomas Holmes's *Known to the Police*. It shows that while the prisoners are treated with all possible kindness, they in many cases have not enough work given them to do, and they are apparently taught trades which are of no use to them when they are returned to the outer world. Mr. Holmes says:

> Prison industries present a very difficult problem. I believe the officials would be glad to give prisoners twice the amount of work they are at present given; but they have not the work to give them, so a life of semi-idleness results.

In regard to the treatment of confirmed alcoholics, Dr. Quinton is strongly of opinion that the State should take over the management and maintenance of reformatories, as owing to the lack of sufficient accommodation the Inebriates Act of 1898 has practically become a dead letter; so far it has been possible to deal only with the very worst cases, and these, after being treated for the statutory three years, have promptly returned to their old habits, and, as before, continue to spend brief periods in and out of prison.

Dr. Quinton tells many stories to illustrate the mental attitude of the confirmed criminal. Whilst admitting that our prison system may not be perfect, he yet shows that it is on the whole efficient, and certainly none of its detractors has yet suggested any other way of dealing with people who are a pest to society. Written simply and soberly by a man who thoroughly understands the problem, we can strongly recommend this book to all who take an interest in the subject, and not least to those who in ignorance of the facts condemn what they call the degradation and brutality of our English prisons.

[1] *Crime and Criminals, 1876–1910.* By R. F. Quinton, M.D., late Governor and Medical Officer of H.M. Prison, Holloway. Longmans, Green, and Co., 39, Paternoster Row, London; New York, Bombay, and Calcutta. 1910. (Pp. 259. 4s. 6d.)

## PUBLIC HEALTH LAW.

The Public Health (London) Act, 1891, was based essentially on the Public Health Act, 1875, and certain other enactments relating to public health, so that the experience gained in the administration of these statutes was

available in the drafting of the London Act. Notwithstanding this fact, the courts have been fairly constantly employed in interpreting some of its sections. In the new edition of their book, entitled the *Public Health (London) Act, 1891*,[2] Mr. MACMORRAN and Mr. NALDRETT have, with great industry, collected the decisions which have from time to time been arrived at. As an instance of the need for such a work of reference, it is only necessary to refer to Section 141 of the London Act, which interprets, or seeks to interpret, expressions used in the Act. These interpretations in the text of the Act occupy three pages of the volume, but the authors have found it essential to devote no less than forty-four pages of small print to the interpretations which have been given of the interpretations. "Trade refuse," as defined by the Act, means the refuse of any trade, manufacture, or business, or of any building materials, but the Law Courts have decided that if the refuse to be removed is "house refuse" in character, the mere fact that it has been produced in the carrying on of a trade does not make it "trade refuse." A work on public health law in London would hardly be complete unless it included references to the numerous London County Council (General Powers) Acts. Many of these are concerned with sanitary matters, and where this is the case, the authors have given the text in an appendix. Other statutes which have been usefully included are the Canal Boats Act, 1877, the Cleansing of Persons Act, 1897, the Public Health (Regulations as to Food) Act, 1907, and the section (122) relating to the cleansing of verminous children in the Children Act, 1908. The very excellent and copious index adds appreciably to the value of the work.

Only a very limited experience in the administration of the law relating to the sale of food is necessary in order to ascertain the many pitfalls which have to be avoided. Even for the most experienced it is absolutely essential to have a reliable guide at hand. Fortunately such is to be found in BELL'S well-known treatise on the Sale of Food and Drugs Acts. The fifth edition[3] is edited by Mr. CHARLES F. LLOYD, barrister-at-law, who has had the assistance in the revision of the chemical notes of Mr. R. A. Robinson, barrister-at-law. The Butter and Margarine Act, 1907, is dealt with at some length, and the various sections are interspersed with numerous helpful notes. Not the least useful feature of the work is the inclusion in the appendix of a large number of circular letters which have been issued from time to time by the Board of Agriculture and Fisheries and the Local Government Board upon the subject matter of the volume. The codification of our public health laws is long overdue; it has been promised on more than one occasion. Until it becomes an accomplished fact public health administrators in one department of their work will be well served by Sir William Bell's work. The standard which the author set for correctness and conciseness of expression in the first edition, published in 1886, has been well maintained by the editor of the latest edition.

The law relating to public health in this country has become so complicated by amending statutes and by legislation by reference that it is becoming increasingly difficult for students to obtain a satisfactory knowledge of the subject. It is, however, doubtful whether their difficulties will really be lessened by relying on textbooks compiled after the manner of a catechism. This is the style which Dr. CHARLES PORTER has chosen for his volume on *Sanitary Law*.[4] It is divided into various sections headed water supply, infectious diseases, sewers and drains, unsound meat, power of entry, etc. A short question is set and the appropriate answer given at length. He has very prudently omitted to ask himself the question, "What is a sewer?" On the whole, the information given in the answers is clearly and correctly put, though a few slips have occurred which might mislead a student. On page 63 it is stated that local authorities are directed to make by-laws for the regulation of slaughterhouses. This is only correct as far as urban authorities are concerned. On page 43, after reciting the diseases which are compulsorily notifiable under the provisions of the Infectious Disease (Notification) Acts, he points out that any other disease may be added by the sanitary authority. This should be qualified by the statement that the consent of the Local Government Board is necessary before such addition can be made.

## DENTAL SURGERY.

*Dental Surgery and Pathology*,[5] by J. F. COLYER, is the third edition of Small and Colyer's *Diseases and Injuries of the Teeth*. In his preface the author says that he has aimed at bringing the study of dental pathology into line with current knowledge of general pathology, and at associating the causes underlying diseases of the teeth with those underlying disease in general. Perusal of the book shows that this has all through been the author's underlying *motif*, and the value of the work is greatly enhanced thereby. Perhaps too full play has been given to this idea on p. 631 (et seq.), where the description of "gouty periodontitis" seems to fail to distinguish it from any other periodontitis. In his prefaces also the author makes an apology for having considered some subjects very fully, and shortly mentioned others perhaps of equal importance; we find, however, that where letterpress is scant no important point is overlooked, though more might have been written on syphilitic manifestations in the mouth and their prevention in general; while the space devoted to subjects more fully considered is, as a rule, worthily occupied. The book is a distinct advance on any treatise on dental surgery we have yet read, and contains, moreover, good expositions of the author's views on special points. In the chapters devoted to irregularities of the teeth a praiseworthy attempt is made to find a more fundamental basis for classification than has hitherto been forthcoming. In his discussion of the treatment of irregularities the author advances his well-known views as to the benefits of early extraction of premolars. The figures given show dental arches excellent in arrangement, but obviously small, to the detriment, we cannot help thinking, of the patient's facial beauty. We must demur to the announcement in large type (p. 234) that the deformity (superior protrusion) is not always associated with adenoids, and should like to know the class of superior protrusion to which allusion is made. Dental caries and periodontal disease (pyorrhoea alveolaris) are considered from both the human and comparative standpoints, greatly to the advantage of the reader. We note (p. 484) that the author thinks that "increased clinical experience has taught that collar crowns should only be employed under exceptional conditions." When it was said above that as a rule the space devoted to subjects more fully considered is worthily occupied, the chapter on bacteriology of the mouth (by Mr. K. W. Goadby) was in mind. There seems to us to be too little for the bacteriologist and too much for the general reader. The writer appears sometimes not to have a very sequent conception of his theme, as when a reference (p. 311) to *the* streptothrix which is met with in the mouth is followed a few lines later by mention of "another variety producing bright pink colour." The thermal death point of tubercle bacillus is said to be 58° C. for fifteen minutes (p. 301). The author himself is not free from the charge of obscurity—(p. 739) "absence of a third molar tooth, a frequent cause of neuralgia," should surely read "presence of an unerupted third molar tooth." Fig. 447 needs explanation to point out the "marked differences" referred to. On p. 809 the maximum dose of cocaine by injection might well have been reduced to $\frac{1}{4}$ grain in place of $\frac{1}{2}$ grain. The illustrations are numerous and excellent, with the exception of Fig. 409, purporting to show *Treponema pallidum* in a syphilitic liver; but Fig. 854 shows not a cyst as is described, but a chronic abscess of the maxilla.

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[2] *The Public Health (London) Act, 1891.* Second edition. By Alexander MacMorran, M.A., and E. J. Naldrett. London: Butterworth and Co. 1910. (Demy 8vo, pp. 569. 20s. net.)

[3] *The Sale of Food and Drugs Acts, 1875 to 1907.* By Sir William J. J. Bell, LL D. Fifth edition. Edited by Charles F. Lloyd. London: Butterworth and Co.; Shaw and Sons. 1910. (Post 8vo, pp 361. 8s. 6d.)

[4] *Sanitary Law in Question and Answer.* By Charles Porter, M.B., B.Sc., M.R.C.P.Edin. London: Longmans, Green and Co. 1910. (Post 8vo, pp. 150. 2s. 6d.)

[5] *Dental Surgery and Pathology.* By J. F. Colyer, L.R.C.P., M.R C.S., L.D.S., Dental Surgeon to Charing Cross Hospital and the Royal Dental Hospital. London: Longmans, Green and Co. 1910. (Demy 8vo, pp. 1016. 25s.)

*A Manual on Dental Metallurgy*,[6] by ERNEST A. SMITH, the third edition of which has appeared, is, the preface states, primarily designed for the use of students preparing for examination. This object, we think, the book fully attains, and a perusal of its pages will go far to convince the sceptical of the wisdom of those who insisted on the inclusion of metallurgy in the course of dental instruction. The author, without going too deeply into such questions as the extraction of metals from their ores, has compiled a book of some three hundred pages, every one of which is of interest not only to the student, but to the dental practitioner. We could have wished that the author had felt able on some points to assume a less non-committal attitude, as on the question of cohesion of gold (p. 98), where the strongest statement he feels able to make is, "it is, no doubt, the retention of nitrogen which destroys the cohesive property." The opinions of others are perhaps rather too frequently quoted, as on p. 156, when the author offers no opinion of his own as to the cause of "spheroiding" of amalgam fillings; yet his own opinion would be worth knowing. More might have been said as to gold casting, especially as to the relative strength and fit of cast and swaged plates. There are some rather loose expressions which leave a doubt in the reader's mind as to their precise meaning—for example (p. 10, footnote), "the weight in air divided by the difference of the weight in air and in water is the specific gravity of the metal." But such blemishes are infrequent, and the book as a whole is a careful compilation of knowledge useful to the dental student.

## NOTES ON BOOKS.

*The Chemist's Annual for 1911*,[7] while principally intended for pharmacists, contains a good deal of matter useful to all connected with drugs and medicines, such as legal information in regard to poisons, the Sale of Food and Drugs Acts, proprietary rights in goods, etc., with notes on tablet-making, analysis of water, milk, and urine; this and other matter is bound up with diary and cash pages, interleaved with blotting-paper.

The twenty-ninth issue of the *Yearbook and Diary*,[8] published by the *Sanitary Record*—a very useful publication—comprises a diary with two pages allotted to each week, preceded by memoranda for the use of sanitary engineers and surveyors, compiled by Mr. G. J. G. JENSEN. There is also a list of the Government departments with which sanitary officials are usually concerned, together with the names of the principal departmental officials. A section devoted to sanitary and allied associations contains detailed and accurate information relating to about fifty such societies. Several pages are given to an account of the examinations conducted by the Royal Sanitary Institute and the Sanitary Inspectors' Examination Board, but there is no mention of the examination for sanitary inspectors which has lately been established by the Sanitary Inspectors' Association.

Dr. ALBERT WESTLAND'S book, *The Child*,[9] is written for mothers, nurses, health visitors, teachers, and others interested in the care of the young. Certain suggestions for treatment are made in the hope that they may be useful to mothers in emergencies where medical advice is difficult to obtain, and at the same time enable those in touch with medical advice to assist the efforts of their medical adviser intelligently. It may be said that the author has justified his insertion of medical matters, and that on the whole his objects have been well and judiciously carried out. The chapter on "Some Congenital Defects in Children" might well have been omitted, as in most, if not all, of the defects cited the question of emergency could scarcely arise. The section on infant feeding is unsatisfactory and needs thorough revision and correction. The advice to use the milk from one cow is out of date, and now generally disapproved, and the statement that the only advantage of unsweetened over sweetened condensed milk is that the former keeps longer after opening may fairly be questioned. We emphatically disapprove of the advice to start farinaceous feeding at 3 months old, and to give Ridge's or Neave's food at the same age, made at first with plain water, "if the supply of the mother's milk is fair in quantity." The rest of the work is much more satisfactory, and in many ways can be commended.

[6] *A Manual on Dental Metallurgy*. By Ernest A. Smith, Associate of the Royal School of Mines, London. Third Edition. London: J. and A. Churchill. 1910. (Post 8vo, pp. 310. 6s.)

[7] *The Chemist's Annual and P. J. F., the Pharmacist's Diary and Yearbook, 1911*. Edited by John Humphrey. London: The Pharmaceutical Press, 72, Great Russell Street, W.C. (5s.)

[8] *The Sanitary Record Yearbook and Diary. 1911*. London: The Sanitary Publishing Company. (Post 4to, pp. 72. 2s. 6d.)

[9] *The Child: A Medical Guide to its Care and Management*. By Albert Westland, M.A., M.D., C.M. London: Charles Griffin and Co. 1910. (Demy 8vo, pp. 200. 2s. 6d.)

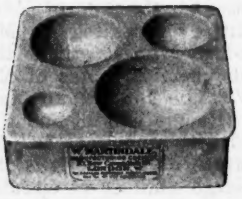
## MEDICAL AND SURGICAL APPLIANCES.

*Bedstead for Tropical Hospitals.*

DR. A. J. M. PAGET, senior medical officer, Somaliland, has sent a description of a new and inexpensive type of bedstead designed for use in native hospitals in tropical countries. Instead of the wire mattress, which so soon gets corroded, the bed is constructed with rounded framework, which is then strung locally with native fibre rope. The rope both lasts well and is also very cheap (8d.) to renew; this is of considerable importance where discharges have contaminated it in surgical or other cases. The rope mattress is covered usually with a grass mat, which is cool and comfortable to sleep on, besides being easily obtainable in tropical countries. The beds are particularly easy to freight owing to their comparatively small bulk and absence of etceteras. The feet are designed solid, as much more suitable for mud and lime floors, which soon give way under the usual castor-fitted bedstead. Over fifty of these beds have recently been sent to the civil medical department, where they have proved highly satisfactory, and Dr. Paget speaks most highly of the coolness and comfort experienced by the patients. The bedstead is supplied by Messrs. Arnold and Sons, of Giltspur Street, London, E.C.

*Combined Solution Tray, Staining Bath, and Embedding Mould.*

Mr. W. Martindale, 10, New Cavendish Street, London, W., supplies a combined porcelain solution tray, staining bath, and embedding mould, designed by Dr. Wyatt Wingrave (Pathologist to the Central Throat and Ear Hospital and to the Polyclinic) as a temporary receptacle for different solutions during minor operations. By reason of its stability, cleanliness, shape, and size, it is specially adapted for the consulting-room of practitioners, especially those engaged in aural, nasal, laryngeal, ophthalmic, gynaecological, or dental work. Its use will be found to economize the employment of cocaine, adrenalin, and other costly solutions, while it is readily cleaned and cannot be upset. It will be useful to pathologists for embedding tissue of all sizes, either in paraffin or celloidin, and at the same time provides staining baths for sections. The cells should be wiped out with a very thin film of vaseline before embedding tissues. They are of 3, 5, 15, and 20 c.cm. capacity, which experience has proved to be the most convenient sizes for the different purposes for which they may be employed.



*Thermogène Wool.*

We have received from the Thermogène Company, Ltd. (Hayward's Heath, Sussex), samples of the impregnated cotton-wool which is sold under the above name. This absorbent wool contains calefacient or irritant agents, and examination showed capsicine to be a principal constituent. It is intended to be moistened with eau de Cologne or other alcoholic liquid, vinegar, or salt solution. A trial showed that it has a powerful stimulating and warming effect on the part to which it is applied.

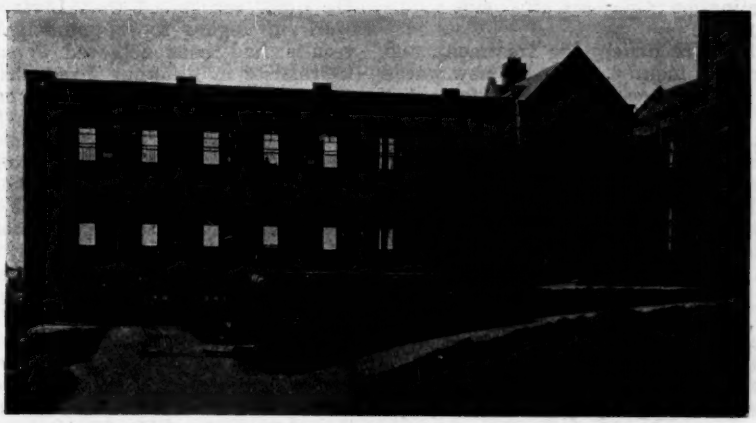
## MEDICINAL AND DIETETIC PREPARATIONS.

*Streptococcus Vaccine for Rheumatic Fever.*

MESSRS. BURROUGHS, WELLCOME AND CO., Snow Hill Buildings, E.C., now issue a streptococcus vaccine for rheumatic fever. The presence of an organism (*Micrococcus rheumaticus*) in rheumatic lesions and in the blood of rheumatic patients has been demonstrated, and it is believed by some to be causally connected with rheumatic fever. The vaccine is obtained from this organism, several strains being used in its preparation. It is said to be useful in cases of persistent relapsing rheumatism. It is issued in convenient hermetically sealed phials holding 1 c.cm., containing either 10 or 50 million organisms.

## A COUNTRY HOSPITAL FOR CHILDREN.

THE Royal Liverpool Country Hospital for Children is an institution which has amply justified its existence, and has proved that a very practical economy results from the taking of sick children, and more especially those suffering from disorders which require prolonged care, right away into the country, where their treatment, whether medical or surgical, can be carried out in open-air wards. The Honorary Physician (Dr. C. J. Macalister) and the Honorary Surgeon (Mr. Robert Jones), who have now had experience of this work extending over a good many years, in a report read at the recent (twelfth) annual meeting, gave an instructive comparison of the results obtained under three sets of conditions. In the early days of the work the children were treated in an ordinary ward, but spent a good part of the day outside during favourable weather. Then came a time when, pending the building of the open-air wards now in use, the patients, beds and all, were every day moved into the open air in the early morning and remained there until sundown; latterly, since the completion of these wards, they have been treated entirely in them. The results have been good under all three conditions, but it is abundantly manifest that the last condition is incomparably the best, and that the period of treatment has been in most cases greatly shortened owing to the stimulating effects of constant fresh air and sunshine upon the processes of growth and repair. The invariably rapid gain in weight and the rosy, chubby faces of the children, even though they be the subjects of serious diseases, bear testimony to the advantages to be derived from the system which has been adopted, and which has been so thoroughly and efficiently carried out. The economy to which we have referred consists not only in this shortening of the period of treatment, which enables a larger number of children to be dealt with, but also in the indisputable fact that many of these children would succumb or would become permanently invalided unless cared for under these conditions in a hospital where no time limit compels the discharge of the patient before the greatest possible permanent good has been attained. It has been a common experience to find that cases which resisted prolonged treatment in a general hospital have rapidly improved when removed to the country hospital.



Open-air Wards: General View. Underneath the lower ward, to the left of the picture, is a covered playground.

Open-air Ward: Near View.

Open-air Ward: Interior.

The hospital is situated at Heswall on the high lands overlooking the Dee. It has been constructed in such a way that there are great possibilities of future expansion without involving structural alterations in the administrative and central blocks, which have been designed to deal with an ultimate total of at least 200 beds. The administrative block accommodates the staff and provides a board room, matron's, sisters' and nurses' sitting rooms, and a separate bedroom for each nurse. There are forty-two of these rooms. There are also rooms for resident medical officers in this block.

The central block is connected with the administrative department by means of a corridor. It is a large building, which contains on the ground floor two medical wards for infants and young children, and a large entertainment room. An isolation block containing several small wards and a kitchen has been constructed on a level with this floor. It is cut off from the main corridor, and is entered from the outside. On the second floor is the theatre, with its associated sterilizing and anæsthetic rooms, and a surgeon's dressing-room There is also a large $x$-ray room, a surgical ward for such patients as require temporary indoor treatment, rooms for sick nurses, a nurses' dining room, a sewing room, and a splint room.

On the top floor is the large kitchen and its attached storerooms, connected by means of separate lifts, for example, for coal and stores, and for distributing food to the various departments of the hospital. The servants' hall and their sleeping accommodation is also on this floor. The dispensary and the laboratories are in the basement. The outstanding features of the hospital which require special mention are the large open-air wards, two of them completed and two in course of construction, which form wings at the north end of the great central corridor. These wards are 85 ft. long by 32 ft. wide. They are entirely open on one side, the walled sides being well

lighted by means of windows. The children live in these wards night and day, and are kept thoroughly warm with plenty of clothes and with hot bottles; for the heating of these bottles a special appliance is provided on each floor. The patients quickly become inured to the weather, and evidently enjoy their open-air life. Rooms are provided in connexion with each ward into which the children are taken for medical examination; there are other side rooms and ward kitchens attached.

At present 82 children are undergoing treatment, and in the course of a couple of months, when the new wards are completed, there will be accommodation for about double that number. As there is no supply of artificial light in Heswall, which is quite in the country, it was found necessary to instal an electric generating plant, which supplies light and power for the lifts and laundry. The hospital stands in ten acres of heather-clad land in surroundings which are entirely beautiful.

We are indebted to Mr. C. H. Schuhmacher for the photographs by which this note is illustrated.

The Earl of Derby, President of the hospital, who was in the chair, made a special appeal at a dinner given in aid of the hospital at the Adelphi Hotel, Liverpool, on Thursday, February 23rd. He acknowledged the receipt through Lady Sefton of a gift of £50 from the Duke of Westminster, of gifts of £1,000 from Mr. Edward Hutchinson for the endowment of a free cot, and of £600 from Mr. Cain for the endowment of an appropriated cot. Since the foundation stone was laid in 1906 by Colonel Montgomery, great progress had been made, partly through the energy of that gentleman and partly through the energy and generosity of another gentleman interested in the hospital who declined to allow his name to be mentioned. During the past year 182 children had been treated, and, of the 108 patients, 68 surgical and 40 medical, who had been discharged, all had done well with the exception of 7. The great object of the hospital was not to make rapid, but to make radical and lasting, cures.

The toast of success to the hospital was proposed by the Lord Mayor of Liverpool, who observed that the hospital was established for the benefit of children who required long treatment, and had been built on a site where Nature contributed almost as much towards recovery as medical and surgical skill.

Sir Thomas Barlow, President of the Royal College of Physicians, in supporting the toast said that physicians and surgeons were the most severe critics of their own work and were fully conscious of the great limitations of the hospitals in many ways, not entirely due to the faults of the physicians and surgeons, but some of them arising out of the conditions of the age. On the other hand, the collateral results of their work were often quite as important and quite as striking as the direct effects aimed at. The great crusade against tuberculosis had produced, besides its direct, many indirect, benefits; he supposed, for instance, that every person in that room now slept with his window open. A great many diseases besides tuberculosis were all the better for sunlight and the free circulation of air. The world was beginning to learn the lesson which Florence Nightingale taught so far back as the Crimean war—the lesson of sleeping with open windows and letting as much air as possible into a room. There was no greater fallacy than the belief that children could not bear cold winds. They could bear cold winds better than grown-up people if only certain precautions were taken—that was to say, they must be given plenty of warm underclothing and care taken to keep their extremities well clothed, with, if necessary, a hot water bottle kept in their vicinity. He took a great interest in this hospital, for though he had not seen it until that day, the principle it embodied had been a dear subject with him for many years past. Dr. Macalister had shown him the hospital and explained its working. The success achieved under the care of Dr. Macalister and Mr Robert Jones, who had stuck to the work through thick and thin, was astonishing. They had not attempted to deal with all kinds of cases, but had specially fixed their minds upon chronic cases, and that, he would venture to say, was one of the modern developments of true philanthropy. In the old times the endeavour was to patch up, to deal with immediate needs, but if children were only given time enough and put in the right condition, it was marvellous how they would recover. He recommended all persons engaged in the work of hospital reform to study the excellent methods of the Liverpool Country Hospital for Children. It was said that this was the day of municipalization, and some people advocated the municipalization of hospitals. He did not wish to live to see that day. He quite recognized that Liverpool had done splendid work in regard to its municipal hospitals. Excellent results had been achieved in some of the workhouse infirmaries in different directions. He, however, hoped that such an institution as had been founded at Heswall would never be allowed to become municipalized. He hoped that in time it would be possible to make developments on educational lines in teaching handicrafts and other things. If the hospitals were municipalized it would mean that they would lose the valuable and disinterested services of those prominent citizens who at present took such a keen interest in the management of these institutions, and the many ladies who helped in various ways to further the work. The good working of municipal infirmaries was largely dependent upon the initiative of one or two persons, and he ventured to assert that the great improvements in social and medical work were largely due to voluntary effort.

Mr. B. G. A. Moynihan, M.S., who also spoke, said that the scheme of the hospital had been conceived and carried through almost to completion with every circumstance of care, and it possessed every ingredient of success; it had had generous benefactors and had benefited by organized skill and enthusiasm. The difficulties which confronted the surgeon were not primarily those of equipment and maintenance of buildings, but those inherent in the cases with which he had to deal. The means which the surgeon now possessed, and not the surgeon alone, of dealing with these difficulties had been enormously increased by the work of one man whom he ventured to describe as the greatest man now living, Lord Lister, who was spending the evening of his days in this country honoured by the medical profession and men of science throughout the world.

The toast of "The Medical Profession" was proposed by Sir Edward Russell, who spoke of the admirable co-operation which existed between those engaged in the management of the hospital and the medical men connected with it. The toast was acknowledged by Sir Donald MacAlister, who said that Liverpool might well be proud of the fact that it had bred men who had become medical leaders. One result was that Liverpool was now teaching many of her elder sisters in medicine. Mr. Harold J. Stiles, M.C. (Edinburgh), who also responded, praised the conception of the hospital and the manner in which it had been realized.

Dr. Wilfred Grenfell, C.M.G., gave the toast of "The President," which was briefly acknowledged by Lord Derby.

## MEDICINE IN THE "ENCYCLOPAEDIA BRITANNICA."

### First Notice.

A general review of the new edition of the *Encyclopaedia Britannica*[1] appeared in the British Medical Journal of February 11th, p. 324. In that preliminary notice we indicated the features which make it virtually an entirely new work, in which a summary of all human knowledge is given by writers who can speak with authority on their special subjects, the mass made up of the several contributions being fashioned by editorial design and supervision into a well-proportioned organic whole. It is, therefore, neither a dictionary nor a mere collection of independent monographs, but a book arranged on a uniform plan—a "mighty maze" indeed, but "not without a plan."

Medicine finds a place adequate to its importance in the ever-expanding field of modern science. The various subjects comprised under this head are dealt with by writers of recognized competence in a manner at once strictly scientific and intelligible to the average lay mind. This of itself gives the *Encyclopaedia* a special character

[1] *The Encyclopaedia Britannica*. A Dictionary of Arts, Sciences, and General Information. Eleventh edition. Vols. I-XIV. Cambridge: University Press. 1910.

of usefulness which should commend it to the medical profession. As we have often said, it is not in legislation that the hope of freeing the mind of the people from the degrading bondage of quackery lies so much as in the diffusion of accurate knowledge as to the structure and functions of the human body and the effects upon it of its surroundings, of food and drink, and of physical and medicinal agents. By the creation of a scientific atmosphere, in which imposture cannot live, quackery will die a natural death.

Towards the attainment of this end the information on medical subjects given in the *Encyclopaedia* will effectually contribute within its sphere of influence. That sphere, therefore, in the interest of rational medicine, which is the most powerful factor in the public welfare, cannot be too wide. The more people know of the medium in which the doctor has to work, of the difficulties he has to meet, and of the resources which he can bring to bear towards overcoming them, the more ready they will be to trust him and the greater allowance they will make for failures which they have learnt to be inevitable. The better, too, will the public be able to appreciate at their proper value the impossible pretensions of quacks, and to discount the exaggerated claims of enthusiasts. By its educative effect in this direction, the *Encyclopaedia* discharges a function of the greatest value to mankind which the medical profession, owing to necessary but none the less artificial restrictions of its activity, cannot itself adequately fulfil.

It is matter for satisfaction, therefore, that in the new edition medicine—taking that term in the most comprehensive sense—and the sciences more or less directly connected therewith occupy a far larger space than was allotted to them in former editions. Not only does the medical section occupy nearly double the space given to it in the tenth edition, but the growth of knowledge has made it necessary to provide articles on a number of subjects that were not previously included in its scope. The arrangement of the matter also differs from that previously adopted. Whereas formerly there existed a number of detached articles on various diseased conditions, an effort has now been made to link up the various sections and groups each in connexion with a heading, and showing the relation of the subsections to it. This has been done by the selection of certain anatomical divisions or main systems, and the addition to them of the physiology and pathology, and in some cases of the medicine and surgery, of that system. As an example we may point to the article, "Respiratory System," which comprises the anatomy of the respiratory system, its physiology, an account of the mechanical movements of respiration and the pathology of respiratory diseases. In addition to such groups there are articles dealing with the clinical side of those diseases and giving a full account of their treatment. Thus, in the respiratory group, there are separate articles on bronchitis, bronchiectasis, pleurisy, pneumonia, tuberculosis, etc., in which an account is given of the conditions predisposing to each disease. The importance of the statistical method as an aid to scientific precision in medicine is becoming more and more recognized at the present day. A valuable feature of the new edition of the *Encyclopaedia* is that in the more important articles on medicine an attempt is made to supply adequate statistics of the disease, not alone in Great Britain, but also in foreign countries.

We propose to refer in some detail to the various articles in subsequent notices. Here it is sufficient to say that even a casual inspection is sufficient to show that a most praiseworthy effort has been made to embody in the *Encyclopaedia* the latest advances in medical science. Although in the case of a subject so progressive that it may be said of it with literal truth that "panting time toils after it in vain," it is impossible in any general review to represent the exact point reached at a given time in every province of research, this eleventh edition of the *Encyclopaedia* is immeasurably more up to date than any of its predecessors. Thus, to take only a few of the most modern instances, we find accounts of the newer methods of diagnosis and treatment of tuberculous disease and a discussion of the sanatorium treatment; descriptions of serum treatment in its later developments, and of vaccine-therapy; and a survey of the newly annexed province of tropical diseases.

It should be mentioned that, in addition to the special articles, a large number of dictionary headings, giving a brief explanation of medical terms, is scattered through the volumes. A touch of human interest is added by numerous short biographies—ranging from Æsculapius to Virchow—of persons who have written their names in the history of medicine. Valuable help to the reader is afforded by the fullness of the index in respect of medical subjects.

In conclusion, we commend the eleventh edition of the *Encyclopaedia Britannica* to doctors who wish to have by them a trustworthy work of reference in which will be found the result of a careful winnowing of the harvest of modern scientific research. To the general reader we commend it as probably the best popular summary of the fruits of the labours of the men who have worked, and are at present working, to transform medicine from a system of speculations and a collection of empirical facts into a science which will afford a foundation for a thoroughly effective art of healing.

## SICKNESS INSURANCE AND PUBLIC HEALTH.

By ROBERT A. LYSTER, M.D., B.Sc., D.P.H.,
County Medical Officer, Hampshire.

THE fact that the issue of a Government scheme of sickness insurance is imminent affords further proof of the desirability and urgency of a scheme for the unification of the medical services as part of a general extension of the scope of prevention of disease. As the working details of the proposed scheme are not yet available, it may not be out of place to submit some suggestions in connexion therewith, and to show how completely such a scheme could be made to accord with a much-needed increase in State activity in the protection of the public health.

It may be assumed that the scheme for sickness insurance will involve:

(1) Contributions from workmen.
(2) Contributions from employers.
(3) Contribution from State funds.

The contributions from workpeople and employers constitute virtually a new tax, and in return for this and also for the considerable annual subvention from public funds the community should see that it gets an adequate return in an improvement in public health, if not also in personal conduct. Any scheme, therefore, that is based on a mere money payment to the sick man must be open to very grave objections from a public health standpoint.

### SCHEME OF UNCONDITIONAL PAYMENTS.

Merely to provide anything like 5s. a week during sickness, with a maximum of say thirteen weeks, and without provision for medical treatment, would be next to useless from a public health point of view. The handing over of any given weekly sum of money would not necessarily promote preventive medicine in any way. Such a plan would neither insure medical treatment nor the adequate maintenance of the patient, and still less of his family. The recipient would not be bound in any way to do anything to promote his recovery; the weekly sum might be spent in drink or betting.

*Disadvantages.*

1. If such a plan were adopted it might, in fact, be suggested that, although the workman had had 1d. a week compulsorily stopped from his wages in the past, yet this would not make the 5s. a week in sickness anything other than unconditional, inadequate outdoor relief on a colossal scale.

2. Another result would be that malingering, in all its forms, would become a grave evil; 5s. a week whilst unable to go to work might not be much of a temptation to the skilled artisan of the towns. But 5s. a week to: (*a*) the man in the West of Ireland or the Hebrides, (*b*) the unskilled woman worker everywhere, (*c*) the labourer in discontinuous employment who finds the intervals between jobs lengthening out, and (*d*) the idle man or woman anywhere, would prove, in hundreds of cases, an irresistible temptation to make the most of their rheumatism, sciatica, etc.

3. A free choice of doctors must almost inevitably follow unconditional payments, and the available doctors would necessarily be limited to such as cater for the fees that 5s. a week maintenance would be likely to afford. It may be suggested, therefore, that while the chances of the genuine case would be small as to recovery, yet to the malingerer there would be an irresistible attractiveness about the doctor who was generously lax in giving the certificate that would permit of the 5s. being drawn.

### A PUBLIC HEALTH SCHEME.

In return for any large scheme of contributions and State subsidy, it may be assumed, possibly, that the community would demand for the sick persons:

(*a*) Adequate medical and surgical treatment of the patient, so long as he is ill, together with proper maintenance, and
(*b*) Provision for the dependents of the breadwinner when he or she is unable to work through illness.

At the same time it should be possible to secure these ends in such a way as to insure:

(*c*) Prevention of malingering, and
(*d*) Promotion of the general public health.

In preparing any scheme one must bear in mind the following facts:

1. Six millions of people are already in suitable friendly societies or trade unions providing sick pay; these with their wives represent, perhaps, one-third of the thirty millions of the United Kingdom population over school age.

2. Some more are in unsuitable societies, while probably eight millions are not provided for by any form of insurance; these represent, with their wives, half the United Kingdom population over school age, though falling below the suggested income limit of £150 per annum. This limit might reasonably be reduced to £100.

3. At the same time any system of compulsory contribution must, for administrative reasons, be made applicable equally to all wage earners, whether already provided for or not.

The following scheme is suggested as fulfilling the assumed conditions:

I. *Revenue.*—It is assumed that the statements made as to the "revenue" side of the Government plan are correct, namely: (*a*) Compulsory universal deduction from all wages or salary under £150 per annum. (*b*) Equivalent contribution by employer; these sums to be payable either by taxation upon annual returns of wages or by affixing stamps to a wages sheet. (*c*) Government subvention thereto.

II. *Members of Approved Friendly Societies.*—It is suggested that there should be paid over to all approved friendly societies and trade unions giving sick pay the equivalent of whatever has been paid into the fund (excluding Government subvention) in respect of their own members. This payment could either be made (*a*) an unconditional grant in aid of their sick funds, or (*b*) a sum to be received and appropriated, in accordance with some approved scheme, in any special way desired (for example, reducing premiums, adding new benefits, providing annuities). The State contribution in respect to the same members could be paid over to the above societies and unions as a variable grant to be earned by efficiency.

III. *Non-members.*—With regard to all the rest, the Local Health Authorities should receive the contributions of employees and employers in respect of all the insured population within their area, as a fixed grant in aid of its total public health expenditure on condition that the Local Health Authority makes the following provisions:

(*a*) Suitable medical and surgical treatment to all persons needing it (that is, those not provided for by friendly societies, etc.), either in hospital or at home, as may seem best, and subject to charge and recovery of adequate fees where the income is above the compulsory insurance limit. The method of making the required provision could be left to the locality (county or county borough) to decide upon, subject to approval by the Central Department. One method, for instance, would be for the local authority to fix a scale of payments for all necessary treatment after consulting with the local organization of the British Medical Association. In this way each locality would make its own terms. The local authority would of course retain powers of supervision.
(*b*) Allowances for maintenance of patient and his dependents where necessary.

The State contribution in this case could be paid as a grant in aid to be earned by and depending on efficiency of administration.

*Advantages.*—The following advantages may be claimed for the scheme:

1. Adequate treatment and maintenance of all sick persons by a responsible medical authority is ensured.

2. The greatest possible stimulus is given to the prevention of disease and to public health work in general. In order to avoid unnecessary expense each local authority would search out and treat all forms of disease and a great increase in public health activity would result. Local authorities would quickly realize that it was to their interest to do real preventive work.

3. The best possible safeguard against malingering and against improper use of the provision is afforded. The supervision of the local authority would be sufficient to prevent these abuses.

4. The friendly societies are protected and encouraged, enabling them to increase their membership and to add to their efficiency and attractiveness.

5. The practice of the general practitioner is left untouched. He is in a position to make suitable terms with friendly societies for the medical attention required for their members, and with the health authority for the treatment of the remainder. Such terms may be arranged on the basis of fixed payments per head or separate fees for work actually done, in accordance with a scale. All these details might be left to be decided upon locally, and there appears no reason why one system should not be at work in some areas and the alternative plan in others. All persons above the income limit would be left in the same position as at present.

## THE ANNUAL REPORT OF THE MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD.

### I.

THE Thirty-ninth Annual Report of the Medical Officer of the Local Government Board for 1909–10,[1] the publication of which has already been mentioned, contains Dr. Newsholme's general report and a number of appendices, including one by Dr. Bruce Low on the progress and diffusion of plague throughout the world during 1909, showing that the disease was widely endemic.

### *The Vaccination Act, 1907, at Work.*

The digest of vaccination officers' returns is of considerable interest and importance as showing the immediate effect of the 1907 Vaccination Act. The summary deals with children whose births were registered in 1908, the first complete year after the relaxation of the law enforcing vaccination, a relaxation which practically afforded invitations to exemption. During the nine years before the 1907 Act the exemptions in England and Wales never rose higher than 5.8 per cent. of the births. In London during the same period the exemptions were never more than 1.5 per cent. A marked change occurred in 1908, when the exemptions in England and Wales rose to 17 per cent. and in London to 7.3 per cent.

We quote the following paragraph and table from the report:

Of 940,640 births reported to the Board by the several vaccination officers in England and Wales as having been registered during the year 1908, the number which, at the time the return was made, had been registered as successfully vaccinated was 594,792 (being 63.2 per cent. of the whole), and the number registered as having died unvaccinated was 80,188 (or 8.5 per cent. of the whole). Of the remaining 265,660 children, 2,438 (or 0.3 per cent. of the whole) had been registered as insusceptible of vaccination; 2 as having contracted small-pox; 14,333 (or 1.5 per cent.) as having their vaccination postponed by medical certificate; and 160,350 (or 17.0 per cent.) in respect of whom certificates of conscientious objection were received; leaving 88,537 (or 9.4 per cent.) as "removed," "not to be traced," or otherwise unaccounted for. If from the 940,640 births returned by these officers the

[1] The Thirty-ninth Annual Report of the Local Government Board, 1909-10. London: Darling and Son, Limited, 34-40, Bacon Street, E. (Medium 8vo, pp. 604. Price 3s. 7d.)

ENGLAND AND WALES.

*"Abstention" from Vaccination and "Acceptance" of Vaccination in 1893-97 and in Subsequent Years.*

| | Per Cent. of Births in Each Instance. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1893-7. | 1898 | 1899. | 1900. | 1901. | 1902. | 1903. | 1904. | 1905. | 1906. | 1907. | 1908. |
| ABSTENTION. | | | | | | | | | | | | |
| "Exempted," "postponed," and "remaining" | 21.0 | 26.6 | 20.8 | 19.9 | 17.3 | 15.2 | 14.7 | 14.5 | 14.8 | 16.8 | 20.3 | 27.9 |
| *Exemption alone ... ...* | — | *5.1* | *3.6* | *4.3* | *4.5* | *3.6* | *4.0* | *4.3* | *4.8* | *5.8* | *8.4* | *17.0* |
| ACCEPTANCE. | | | | | | | | | | | | |
| Vaccinated ... ... ... | 67.7 | 61.0 | 66.4 | 68.7 | 70.8 | 74.8 | 75.4 | 75.3 | 75.8 | 73.4 | 70.9 | 63.2 |

80,188 deaths that took place before vaccination be first deducted, it appears that, of the surviving 860,452 children, there were registered at the time of the return 69.1 per cent. as successfully vaccinated; 0.3 per cent. as either insusceptible of vaccination, or as having had small-pox; 1.7 per cent. as under medical certificate of postponement, and 18.6 per cent. in respect of whom certificates of conscientious objection to vaccination had been obtained; leaving 10.3 per cent. as at that time still unaccounted for as regards vaccination.

It may be true that in some parts of the country applicants for exemption under the 1898 Act had been improperly hampered by magistrates when applying for exemption. This called for amendment, but not for the total removal of all obligation on the part of the parent except the mere declaration so easily obtained. At least, the authorities might have endeavoured to impress on the parent the desirability and importance of having the child vaccinated. As matters stand at present, the average parent cannot tell whether the Government seriously desires the vaccination of his child. He is provided at registration with the means of escape, and, when the child is three months old, he is officially invited (Form Q) to get the child vaccinated or exempted practically on level terms. Under these circumstances, it is remarkable that so large a proportion as 63·2 per cent. of the children born in 1908 were vaccinated. Every parent knows that he can stifle his "conscience" when danger approaches and rush for vaccination. It is known that a very large number of those who go through the formality of declaring "conscientious" objection have no such objection, and simply desire to wait until a more convenient or imperative time. The number of exemptions has increased since 1908, and in the absence of small-pox, will doubtless increase, unless some change is made in the present system. Some influence should be brought to bear on those who are merely thoughtless and indifferent, but have no insurmountable objection to vaccination. Among the many signs of uneasiness and anxiety at the present state of affairs are to be found warning words from medical officers of health to their councils or boards, and in some cases—notably Edinburgh and Glasgow—the increase of exemption is causing grave concern as to the means available for coping with an outbreak of small-pox. The public will certainly be called upon to provide large sums of money to meet such emergency, an altogether unnecessary expenditure if vaccination were properly enforced.

## SCIENCE NOTES.

ROENTGEN rays from ordinary bulbs are usually produced at generating potentials of between 10,000 and 100,000 volts. It is possible by using a special tube with a very thin aluminium window to experiment with rays generated at only a few hundred volts. The rays generated at 1,000 to 3,600 volts have recently been investigated by Mr. R. Whiddington, B.A., whose results were communicated to the Royal Society recently by Sir J. J. Thomson. It was found that such soft Roentgen rays had much the same properties as the harder rays usually experimented with. They produced ionization in air, affected photographic plates, and excited secondary radiations when incident on solid bodies. Their range in air, however, was not many centimetres. For many purposes a Roentgen radiation is sufficiently defined by a knowledge of—(1) the total energy; (2) the penetrating powers in absorbing screens. These two properties had therefore been investigated in some detail, with reference particularly to the influence exerted by—(1) the material of the anticathode; (2) the potential at which the rays were generated. The anticathodes used fell naturally into two groupings: Group A.—Al, Pt. Group B.—Ag, Cd, Cu, Fe, Ni, Pb, Sb, Sn, Zn. The anticathodes of Group A were found to emit secondary radiations; those of Group B did not. Experiment indicated that Al emitted a soft characteristic radiation. In order to arrive at a common explanation of a number of experimental results it was suggested that this Al radiation disobeyed the law of "Roentgen ray fluorescence" recently advanced by Barkla.

Although many plant remains have been found in various geological strata, the perishable nature of vegetable structure in general makes it unsuitable for preservation, and it is not surprising that there are numerous gaps in vegetable palaeontology. It is, however, rather astonishing that so few connecting links have been unearthed between the great groups existing at the present day, the angiosperms, gymosperms, bryophyta, etc. Even the Cambrian strata, in which so many rich finds of animal remains have been made, are singularly lacking in plant life. The sudden appearance of the Cycadofilices and other forms in the Silurian and Devonian, and of the angiosperms in the Cretaceous is rather remarkable. To account for these strange facts Meyer has recently put out an interesting theory. He does not share the view that the connecting links between the various groups have not been preserved. His idea is that practically all our modern vegetation arose from a group of small plants, so delicate and fragile, that though they lived up to cretaceous times, very few traces, if any, of them remain in the geological record. This group may have arisen in Cambrian times from freshwater algae and become differentiated into subgroups. The individual members probably resembled the prothallus of ferns or the gametophytes of mosses. No sporophyte was developed, but only spores or sporangia, giving rise directly to similar individuals. The Cambrian flora was entirely marine, but land was gradually being formed and fresh water appearing, so that from these original marine forms others were developed to suit the changing environment. The theory is plausible, and appears to account for the innumerable gaps which undoubtedly do occur.

A note in *La Nature* refers to Piutti's recent discovery that minerals in a state of fusion can absorb helium, a fact which accounts for the presence of helium in non-radio-active minerals like stibine. This discovery destroys the value of the attempts made by some to estimate the age of rocks by the amount of their radio-activity. A simple formula to this effect was proposed by Strutt, who calculated that $9.13\times10^{-8}$ cubic metres of helium would be evolved annually for every gram of uranium oxide present. From this by chemical analysis could be determined the number of years which had elapsed since the mineral had crystallized. Piutti's observations show that this is inapplicable. At their formation in a state of fusion the minerals may have absorbed the whole or part of the helium which they contain, and, on the other hand, they may since then have lost variable amounts of it owing to the heat to which they have from time to time undoubtedly been exposed. On this account the helium content can give no precise idea of the age of rocks.

A very curious newt has recently been studied by two French naturalists. It is like an ordinary newt in most respects, but it has no vestige of lungs. It is an inhabitant of Corsica, where it lives under stones in the dry beds of rivers. In spite of the absence of lungs it performs rhythmical respiratory movements. The buccopharyngeal cavity is highly vascularized, and a certain amount of respiratory exchange is effected, but the bulk goes on through the skin. It is, of course, a well-known fact that in amphibians, although they possess lungs, a considerable amount of respiration is performed by the skin. In *Euproctus montana*, as this strange beast is called, however, the skin is the essential organ of respiration. This was demonstrated experimentally, for the animals remained alive although their mouth was kept shut; but they died within twenty-four hours when immersed in a bath of vaseline from which only their head protruded.

## LITERARY NOTES.

SIGNORA NINA LOMBROSO offers a prize of the value of £40 for the best essay embodying the results of clinical and experimental research relative to the late Professor Cesare Lombroso's theories as to the etiology and prophylaxis of pellagra. Memoirs, which may be printed or in manuscript, must be addressed to the *Archivio di Antropologia Criminale, Psychiatria, e Medicina Legale*, published by the Fratelli Bocca of Turin. They must be delivered there on or before October 19th, 1912.

It is said that Dr. Fielding Ould, of Dublin, the second master of the Rotunda Hospital, was the first obstetrician in Ireland on whom the honour of knighthood was conferred. This distinction was made the occasion of the following epigram:

> Sir Fielding Ould is made a knight,
> He should have been made a lord by right,
> For then each lady's prayer would be,
> "O Lord, good Lord, deliver me."

About a hundred years have elapsed since the appearance of the last volume of Sir J. E. Smith's *English Botany*, with illustrations by James Sowerby, and about fifty years since the appearance of the first volume of Boswell-Syme's edition of that epoch-making work. It is thought, therefore, that the time is ripe for the issue of another great and illustrated flora of this country. The Cambridge University Press has made arrangements for the appearance of such a flora, by Dr. C. E. Moss, Curator of the Cambridge University Herbarium. The author will receive assistance from specialists in several critical genera. Engler's system of classification will, generally speaking, be followed; and the first volume to appear will deal with the earlier dicotyledonous families from the Salicaceae to the Chenopodiaceae. The work will be illustrated with pen and ink drawings by Mr. E. W. Hunnybun, about 1,750 of which have already been completed. In addition to these drawings each volume will contain numerous photographs of plants in their natural habitats; and maps, showing the distribution of the more interesting genera and species, will also be a special feature of each volume. It is expected that the work will be completed in ten volumes.

In the BRITISH MEDICAL JOURNAL of September 24th, 1910, p. 883, we gave some account of that mysterious arch-quack, Cagliostro, of whom Carlyle truly said that "the quantity of discoverable printing about [him] (so much being burnt) is not now great; nevertheless in frightful proportion to the quantity of information given." It is interesting, therefore, to get a glimpse of him through the eyes of one who sat at meat with him at the outset of his career before he had blossomed into the fullness of his evanescent fame, and who was clear-sighted enough to see that he was a vulgar impostor, though, as a lawyer, he seems to have made no difficulty about holding a brief for him. In the *Glenbervie Journals*, recently published under the editorial supervision of Mr. Walter Sichel, the diarist says:

> It is a singular circumstance that I should have known Cagliostro in London, before his fame began. Before he had been in Prussia at Strasburg(h), or Paris. It is perhaps more singular that the first brief I ever had was in a cause of his. He was here about the year 1776 (in which year I was called to the Bar), and then called himself a Colonel in the Prussian service, and, if I recollect, pretended to be a German, though his name and his accent clearly proved that he was not. There was one Bristow or Bristol, who was supposed to be an humble lover of Lady Fitzroy's, the mother of the Duke of Grafton, and was a protégé of hers and of her husband, Mr. Jeffrey. This man who had been in various situations, in trade, a custom house officer, etc., had, about that time, opened a little bookseller's shop near the Tower. He and his wife were toad-eaters to some city acquaintance of mine, and by way of a party, and also to please Mr. and Mrs. Bristow, we went one day to dine with them. At dinner we met Colonel Cagliostro and an Italian *soi-disant* Countess, whom he insinuated to be a sort of incognito wife. She was a handsome woman, tall and rather fair, according to my recollection. She was probably the person who afterwards acted a part in his history. He, that day, pretended to great knowledge in the occult sciences, and particularly gave out that he knew exactly how to calculate and discover the successful numbers in the lottery which was then drawing. Molesworth's imposture was at that time in vogue. The ignorance and, I thought, the stupidity of Cagliostro were sufficiently obvious. However, one of my friends was very near giving credit to his skill as to the lottery, and Bristow either had, or affected, entire faith in it. Bristow and Cagliostro were connected with Mr. Cornelys, a Mr. Sheridan and a Mr. Frere, or a person of some such name, and there had been a traffic among them about certain jewells, which I think Cagliostro claimed, and which Frere got possession of, and an action, or some summary proceeding, had been instituted with regard to them in the Court of King's Bench. Bristow, who was a sort of petty intriguer, and thought I might be of some service to him, or at least wished to oblige my city friends by procuring me a little business, made Cagliostro's attorney, a Mr. James, bring me a motion, in this cause, on behalf of his client. The motion and rule which I obtained will still appear in the rule-book of that time. Bristow soon afterwards broke, and having by the interest of Jeffrey and Lady Fitzroy, obtained some situation in the East Indies, he went there, and died a short while after his arrival. Cagliostro did not find dupes to satisfy him in England, and went, I believe, from London to Petersburgh. He was of a short, thick, stumpy figure, with a florid complexion, and about 35 years of age. I thought his person and manner not unlike those of another famous Italian cheat whom I had often dined with at Prince Kaunitz's at Vienna, Colonel Affligio. I believe both the one and the other were Neapolitans.

Lord Glenbervie, born plain Sylvester Douglas, was, as Mr. Sichel says, "the very Polonius of Diary"; he admits, however, that "his thoughts were often acute, for, as befits a Scotsman, he was shrewd and observant." He began life as a student of medicine, and graduated, both in that faculty and in that of law, at Leyden. Whether he ever practised as a doctor is not clear, but he soon gave up medicine for the law. His connexion with the former profession was not, however, forgotten, and we find him referred to in a lampoon by Sheridan as follows:

> Glenbervie, Glenbervie,
> What's good for the scurvy?
> For ne'er be your old trade forgot—
> In your arms rather quarter
> A pestle and mortar,
> And your crest be a spruce gallipot.

It was, doubtless, his knowledge of medicine that enabled Glenbervie to see through the pretensions of Cagliostro. He makes some shrewd remarks on what we have always held to be the chief cause of the prevalence of quackery. Speaking of a friend sorely afflicted with the gout, he says:

> His surgeon (one of Dr. Moore, the traveller's, sons) was just leaving him. He had been dressing and probing his feet, which are lame from the gout, and constantly throwing out chalk stones. Crawfurd's acquaintance are very apt to blame him for his constant complaints of his health, and the facility with which he used to listen to quacks and try their medicines. For instance, when Cagliostro came over here, after the affairs of the Cardinal de Rohan, he consulted him and took his prescriptions. But it is easy for those who enjoy sound health, interrupted only by temporary illnesses which last but a short time and yield to known and established cures, to exclaim against the impatience or folly of others who, after passing years and years in constant or periodical pain, have experienced the inefficacy of medical science, and are found to catch at anything which has the most distant chance of recovery or cure, even anything which merely *promises* them relief.

We have known a leading physician who avowed that he had taken to "quack" remedies for asthma as his brethren had failed to give him relief; and others, the victims of cancer, who in despair have done likewise after being given up by surgeons. The true hope of suppressing quackery lies in the progress of medical science and the improvement of the art of healing.

British Medical Journal.

SATURDAY, MARCH 4TH, 1911.

## ORGANIZATION OF MEDICAL ATTENDANCE ON THE INSURANCE PRINCIPLE.

PROBABLY no more important report has ever been issued to the Divisions than the Association Report on the Organization of Medical Attendance on the Insurance Principle, which is published in the SUPPLEMENT this week, and it is not too much to say that the future of the profession will largely depend on the answers of the Divisions to the questions appended to the report. The report is long, but, in view of the fact that it had to deal, not with definite proposals of the Government, but with a number of possible contingencies, any one of which might at any time require immediate action, it was felt that the importance and complexity of the subjects to be dealt with made it advisable to place before the profession a full and complete analysis of every aspect of the subject that might arise. Even now it has been found necessary to confine the report to general medical attendance, and the great subject of the provision of hospital treatment for the insured or the co-ordination of the charitable hospitals with an insurance medical service is only dealt with so far as is necessary for the purpose indicated.

After some introductory paragraphs, the report proceeds to state the reasons why the subject is taken up at the present time. Briefly, it may be said that the whole report rests on the assumption that the present medical service for the working classes is in urgent need of reform. From a professional standpoint reform is called for owing to the unsatisfactory conditions of ordinary private practice, the still more unsatisfactory conditions of contract practice, the unfair competition between charitable hospitals and private practitioners, and the way in which the Poor Law medical service is exploited by local authorities. On the side of the public, too, there is urgent demand for reform, and the reports of the Royal Commission on the Poor Law and the discussions to which they have given origin disclose a growing feeling that the medical service, both domiciliary and institutional, for the working classes is inadequate and unsatisfactory; it seems clear that public action in some form will inevitably be taken before long, whether the profession is prepared for it or not. Seeing that State sickness insurance is promised by the Government, it would seem quite natural that it should be accompanied by some reform of the medical service, and the report to the Divisions expresses the opinion that it will be to the interest of the profession that the Association should either undertake or at least co-operate in the organization of a national system for the provision of medical attendance on insurance lines.

In Section B the report deals with the general considerations by which the action of the Association must be guided. The necessity of safeguarding existing interests in private practice or in contract practice is insisted on, and the suggestion of sweeping reforms applicable to and operative over the whole country is recognized to be impracticable until the opinions of the Divisions are declared on certain fundamental questions of principle. Relying, however, on previous declarations of policy by the Association, it is shown that any reforms must be based on three main principles: (1) Throwing the work open to all reputable practitioners, with free choice of doctors by patients; (2) management by medical committees without lay control; and (3) that the rules of the service should be subject to the approval of organized bodies representative of the local profession.

The report then proceeds in Section C to a critical examination of various special points in the actual organization of a service on insurance lines. The constitution of the bodies, central or local, which might institute or carry out the detailed management of a medical service is discussed at length, and occupies something like twenty paragraphs. This would in any case be one of the most difficult parts of the subject, and it is rendered still more difficult by the fact that it is not yet known what the proposals of the Government may be. Nevertheless, it is so important that the profession should decide on the main lines of its policy, whatever form the Government proposals make take, that it has been thought necessary to consider all the possibilities, whether the service be instituted by the medical profession itself, by a Public Assistance Authority on the lines of the Majority Report, by health authorities on the lines of the Minority Report, or by the State under State sickness insurance. Moreover, in each of these contingencies it was necessary to consider what part the British Medical Association should take, no matter whether the State or local public bodies organize and manage the service directly themselves or whether they leave the carrying out of details to the insured, or to the friendly societies or to the medical profession. From this it will be seen that the matter is extremely complicated, for a considerable number of possibilities confront the profession. As a consequence it was thought necessary to present a series of questions for the Divisions to answer as to organization and control of any service; these questions have been carefully framed with the object of presenting all the possibilities in as concrete and practical a manner as possible.

Next come discussions of the questions of wage limits, the admission of women and children and persons who cannot pay their own premium, the range of the medical benefits to be provided, whether domiciliary, institutional, or specialist, and the question whether the provision of medicines and material requirements should be a matter of separate arrangement. It is anticipated that provision will have to be made eventually for every kind of medical and surgical attendance necessary for the insured, but the report suggests that if for any reason the profession undertakes the organization of an insurance service on its own account, it might be better for the premium to be fixed to cover only ordinary medical attendance at patients' homes or doctors' surgeries, leaving to other agencies the provision of other forms of treatment.

A full discussion follows as to the selection of medical practitioners to attend the insured, and it is shown that the Association has repeatedly affirmed that each patient should be free to choose his own doctor from among all those who are willing to attend. The recommendation of the Minority Report in favour of the employment by local health authorities of selected salaried medical officers is discussed in view of the possibility that such a system of selection might be favoured either by the Government or even by the friendly societies. The report shows the advantages both to the public and the profession that would arise from giving patients a free choice of doctor, which would not necessarily be incompatible with the rest of the recommendations of the Minority scheme, and the opinion is expressed that "the supposed advantages of the system of employment of salaried officers are in many respects merely apparent, and that only from an administrative point of view, and not from the point of view of the promotion of health either of the individual or of the community." The question is referred for the definite opinion of the Divisions, with the reminder that under a system of free choice of doctor certain reservations might have to be made as to persons whose whole premium is paid for them by public bodies, and for the protection of holders of existing appointments.

The final part of Section C deals with the three systems of remuneration of medical practitioners which have been suggested—namely, by fixed salaries, on the contract system, or by payment for each attendance. The first system having already been discussed, the arguments and counter-arguments for and against each of the other two are stated, and every aspect of this subject that has been brought to the notice of the committee has received most careful attention. It is not possible to attempt to summarize here this part of the report, but definite questions on various points that would arise under each system of payment are presented for the Divisions to answer.

The report concludes with a general review of the advantages which it is hoped would result both to the community and the profession from a properly organized provision for medical attendance on an insurance basis. The fulfilment of these hopes will very largely depend on the action taken by the British Medical Association, which will in turn depend on the replies of the Divisions to the questions now presented. We make no attempt here to forecast the exact nature of replies to specific questions, but there is no doubt among those who have the best opportunity of judging that, while there may be wide differences of opinion as to details, there will be a practical unanimity on the important matters that affect the relations between the profession on the one hand and the State or lay organizations on the other hand. And for any public bodies to argue that the representations of the Association may be neglected, on the assumption that the Association does not know its own mind, can only lead them to wrong conclusions. The mere presentation of a series of questions to the Divisions must not be understood by public bodies as implying in any way disunion or hesitation in the Association as to certain essential matters. It must rather be taken as an evidence of a sincere desire on the part of the Association to gather from every section of the profession throughout the whole kingdom every possible suggestion that can make for the bettering of the medical service for the working classes.

## INDIAN MEDICAL SERVICE.

The revised rules respecting medical fees in India, received from India as we went to press, were published last week, and we take the earliest opportunity of calling attention to what appears to be a satisfactory solution of a difficult question.

By the issue on July 1st, 1907, of some new rules which in their very nature were unworkable, which were resented as insulting and oppressive by the officers of the Indian Medical Service, and almost equally resented by the very patients whom they purported to protect from possible excessive demands for services rendered, the Government of India placed itself in a false position. We commented strongly at the time (August 31st, 1907) on these rules, and pointed out how detrimental they were to the prestige of the Indian Medical Service, how they attacked all its honourable traditions and privileges, and how infallibly such rules, if not withdrawn, would affect recruitment for the Service.

The matter was at once taken up by the British Medical Association, and representations made semi-officially to the India Office. It was ascertained that the rules were of a class requiring the sanction of the Secretary of State for India, and that the required sanction had not been given, as the late Secretary of State, Lord Morley, did not approve of them. It is not necessary, nor would it be desirable, to go into the whole history of what occurred subsequently; it will be sufficient to say that from time to time during the last three years official inquiries have been addressed by the Council of the British Medical Association to the Secretary of State for India as to when the rules of July, 1907, would be withdrawn. In November last, by order of the Secretary of State, a copy of the new rules, as finally proposed for issue, was sent to the British Medical Association for information, and for any comment the Association desired to make. This act of courtesy was highly appreciated, and a reply was sent to the effect that, with one or two trifling changes, the proposed rules appeared likely to be quite satisfactory to the Indian Medical Service, to the medical profession generally, and to the persons otherwise concerned. We think we are now at liberty to state that the whole question appears to have been thoroughly threshed out with the help of repeated references to and opinions submitted by the various local Governments throughout India, and that the rules in their final form, as just published in India, will receive general approval.

The Government of India was, it is clear, wrongly counselled, and a certain amount of harm has been done, for the Indian Medical Service has apparently ceased to offer as strong an attraction as it formerly did to large numbers of the best men from the British medical schools, and the competition lately has not been so keen as in the past.

With regard to the new rules, the chief points are the following: (1) Instead of applying to all natives of India "of high position," whatever that term meant, throughout British India, their application is limited to ruling chiefs and to others who hold the hereditary titles of Nawab or Rajah, and to their families and dependants. (2) By the former rules a medical officer could not ask for or take from a "native of high social position" a fee of more than 1 or 2 guineas, or more than 10 guineas, in any given month without asking the previous consent of the Director-General, Indian Medical Service, by an official application made through the local Government under which he was

serving, no matter what might be the urgency of the case or have been the nature of the services rendered, or how far he had travelled to render them. The interference with the legitimate practice of Government medical officers was great, and it was not surprising to be informed that the order soon became a dead letter. The new rules allow a medical officer who has to absent himself from his head quarters in order to render such services to accept or demand a fee of Rs.500 (about 32 guineas) for every full day of absence up to three days, and thereafter of Rs.250 daily for a prolonged detention, in addition to travelling expenses. By permission of the Government concerned these rates may be exceeded in special cases. (3) When the attendance on, or the services rendered to, native chiefs, or other persons specified, do not entail the absence of the medical officer from his head quarters—when, in fact, they fall into his ordinary daily work—the fee is not to exceed that which any ordinary person would pay. This seems a fair provision. (4) The fees for operations and confinements are to be the same as in similar cases in the United Kingdom, and we apprehend that no medical officer will be inclined to raise an objection to the rule. (5) In exceptional cases, where larger fees than those which come under the foregoing heads are offered, or are appropriate, the medical officer will be at liberty to report confidentially the facts of the case to his medical chief, who will unofficially obtain and communicate to him the orders of the local Government. No medical particulars of the case will be disclosed by the administrative medical officer. This rule appears to be satisfactory, since medical confidence is safeguarded, which was not the case in previous rules on the subject. (6) Decentralization is effected by giving the local Governments and administrations full power to dispose of all cases reported to them, though liberty is given to consult the Director-General, Indian Medical Service, and to refer any particular case for the orders of the Government of India.

In the circumstance of the necessity for such rules it would be difficult to frame any more satisfactory to those concerned; they are courteous and helpful, the spirit of them is respectful to an honourable and distinguished service, a spirit entirely lacking in previous rules on the subject. Those in India and in England who have devoted much time and trouble to this matter during the past three and a half years are to be congratulated on the final result, though it has been so long delayed.

## SANITARY POLICE AND PUBLIC ASSISTANCE.

THE new edition which is about to appear of the Right Hon. Charles Booth's important volume on *Poor Law Reform*[1] fully reviewed in the BRITISH MEDICAL JOURNAL of May 7th, 1910, will contain a comment by Sir Arthur Downes on the Poor Law proposals of the Executive Committee of the County Councils Association, a summary of which was given in the JOURNAL for February 4th. Sir A. Downes commences by stating his conviction that it has not yet been proved to be necessary "that existing machinery of the Poor Law should be broken up and replaced by a revolutionary embarkation on untried experiment," and he considers that the scheme of the executive committee of the County Councils Association "does not solve the problem of the great urban populations where need for reform is greatest, while it threatens a maximum of disturbance to the rural districts where need is less pressing." He considers that the scheme, since it advocates that some classes should be assigned to the Education Committee, some to the medical officer of health, and some to the Government, really follows the lead of the Minority Report, whereas his experience has taught him that there are hardly any definite lines of cleavage between the classes dealt with by the Poor Law, as the able-bodied and the disabled, the sick and healthy, the feeble-minded and the sane blend so imperceptibly that classification can only be effectually carried out if the whole is left in the hands of a single authority. As to the proposal that the sick should be placed under the medical officer of health, he says, "here, as in the Minority Report, the principles and services of a sanitary police seem to be confused with those of public assistance. These services are and can be well defined; their fusion would be detrimental to the efficiency of both and to the public welfare." Sir A. Downes points out that Mr. Booth's proposals do not form a hard and fast scheme of settled detail; their essence is simply that the policy of grouping units of administrative areas as local needs require should be continued. As an example of the successful working of this principle it is mentioned that the Metropolitan Asylums Board has now "under admirable care and with infinite classification approximately four thousand Poor Law children," and the satisfactory financial position of the Board shows that a single authority can adapt its accommodation to special needs as occasion may require while avoiding that waste which must attend a multiplication of authorities to take the different classes. Special importance attaches to this short memorandum by Sir A. Downes, not only because it emphasizes the value of Mr. Booth's proposals, but because it would seem to embody the principles on which the Local Government Board for England and Wales is at present working.

[1] London: Macmillan and Co.

## ENTOPTIC PHENOMENA.

MUSCAE VOLITANTES are probably at some time or other visible to every individual. In some conditions of hypersensibility they may become an annoyance flitting as brownish smudges over the writing paper, and dancing before the eyes whenever directed to a moderately illuminated surface, such as a cloudless sky. For centuries their correct cause remained in doubt, although the exact explanation was given long before the age of exact science. It is now fully recognized that they are the shadows of organized material in the vitreous, probably the remains of early embryonic life. An exact study can be made of these filamentary beaded structures by very simple means. Perhaps the best is to replace the eyepiece of a microscope by an objective placed upside down, and to direct the light from the substage mirror through it. The whole question was ably treated by Burdon Cooper of Bath,[1] in a well-illustrated article published a few years ago. In addition to these passive or static entoptic phenomena, there are dynamic entoptic sensations emanating from the physiological life of the retina. Fortin[2] has devised a method which makes observation of the circulation in the retinal capillaries easy. He uses a mercury vapour lamp, and from its spectrum separates a monochromatic light of high intensity. Looking at this light the visual field seems to be in a state of ebullition. The retinal capillaries are seen as brilliant convoluted tubes. The red blood corpuscles, and at times the white, follow one another in rapid succession. No vessels are seen in the immediate vicinity of the fixation point. To examine

[1] *Ophthalmic Review*, 1908.
[2] *Comptes rendus de la Société de Biologie*, 1907.

the detail of the foveal region it is better to close the eyes for a few minutes and then interpose a piece of blue glass between the eyes and the light before looking at it. The vessels surrounding the fovea then appear black on a background of blue, then dark blue on light blue, and finally all detail disappears. The fovea shows up a dark oval area with its major axis horizontal. The dark patch is covered by a number of small brilliant circles giving rise to a mosaic appearance (granular aspect of Helmholtz). Dr. Edridge-Green, in a paper read in the Physiological Section of the last Annual Meeting of the British Medical Association, describes further entoptic phenomena which he believes to be due to streaming of the visual purple into the fovea. If one eye be covered by an opaque disc while both are directed forwards in a not too brightly illuminated room, and special attention be paid to the covered eye, an appearance of whirling currents will be seen with this eye. They appear to be directed to a centre, and resemble a whirlpool. The experiment succeeds best if the eyes have been previously exposed to a bright light. In the author's paper[3] these currents are illustrated, and other methods are narrated by which they may be rendered evident. Edridge-Green has repeated Charpentier's experiment which enables the hexagonal pigment cells of the retina to be seen. If the fingers be slightly separated, and then when the other eye is shut the fingers be moved rapidly backwards and forwards while the open eye gazes at the blue sky, the field will become covered with dark purple hexagonal figures, with a light interval between each. Wolffberg thinks, and Edridge-Green supports his view, that these figures correspond to the hexagonal pigment cells. He describes other methods for seeing these cells which are quite easy to repeat. The paper also describes the best methods for making Purkinje's figures evident. The light of an acetylene lamp concentrated upon the sclerotic answers admirably. The fovea can be rendered evident by Loewi's experiment. If we look at a clear white surface through a solution of chromium chloride, which is a celadon-green colour, we see a central purple spot, consisting of three portions—a central bright disc, then a dark green ring, and centrifugally Loewi's ring, which is purple. The central disc corresponds to the fovea, the middle ring to the non-vascular area of the macula lutea, and the outer ring to the outer feebly yellow portions of the yellow spot. The appearances presented by Loewi's ring vary in different individuals. Helmholtz saw it rhomboidal. Edridge-Green sees it circular, with others it is oval. The paper contains illustrations of the subjective appearances of the fovea as seen by its author on awakening in the morning when the retina is very sensitive. One figure is like a sheet of metal punched with oval holes arranged in a concentric manner along sectors in such a way that each circle contains an equal number of holes, which therefore increase in size from the centre outwards. The whole subject is of great interest, and the experiments can easily be repeated, for most of them require no special apparatus.

## THE TREATMENT OF TRYPANOSOMIASIS.

To the *Journal of Parasitology*, vol. iii, No. 3, J. D. E. Holmes, Imperial Bacteriologist to the Government of India, contributes a paper on the cure of surra in horses by the administration of arsenic. The results obtained have been most encouraging, and the author concludes that arsenic is a specific for surra in horses. He believes that a permanent cure is effected and not merely a temporary tolerance of the disease; that the treatment is simple, and that by a careful dosage over 70 per cent. of surra cases, even when contracted spontaneously and in the last stage, can be cured. The disease as seen in India would seem, however, to be of a somewhat mild strain or type, because, as Dr. Bagshawe recently pointed out in the *Sleeping Sickness Bulletin* (November, 1910), the same species of trypanosome in Mauritius reacts very differently towards arsenious acid. Still, that is no reason why the arsenic treatment should not be universally used in India, and even if the life of the animals were only prolonged, that is always so much gained.

[3] *Journal of Physiology*, vol. xli, November, 1910.

## THE ILLUMINATION IN PUBLIC LIBRARIES.

THE artificial lighting of a public library has its own special difficulties, and it can scarcely be said that those difficulties have hitherto been met in a satisfactory fashion. The illumination of some of the great national libraries leaves much to be desired, while in the case of certain London borough and provincial institutions those concerned in their construction do not appear to have appreciated the fact that a reading-room demands a system of illumination quite different from that which might be installed with advantage in the local assembly rooms. Two recent meetings of the Illuminating Engineering Society, working in co-operation with the Library Association, have been devoted to a discussion upon this subject. In an opening paper, Mr. Stanley Jast, the honorary secretary of the Library Association, described point lighting as a necessary evil, and said that he preferred for point lighting above the reading tables the cone-shaped opal shade, made as deep as possible, so that the reader was unable in an ordinary position to see any part of the lamp. Mr. J. Duff Brown, the borough librarian of Islington, thought that for all departments of the greater number of libraries the most practical system was one of general lighting, reinforced at all weak points by local lighting. He preferred to hang lights from the ceiling instead of attaching them to newspaper stands. A lengthy paper was contributed by Mr. John Darch, architect. His ideal was a separate light for each reader; every lamp should be adjustable, and its distance should be under the control of the reader, who might be trusted, not only to accommodate the amount of illumination to the requirements of his eyesight and the special character of his work, but also to switch off the light upon leaving the table, thereby helping to atone for the extra expenditure which a proper system of illumination necessarily entailed. For newspaper stands he favoured the arrangement which obtains at Cripplegate, where a bracket-lamp, projecting 15 in. at about the level of the top of the stand, was placed above every newspaper. Mr. Haydon Harrison insisted that the general lighting of the bookshelves and of the room should be considered quite independently of the comparatively high individual illumination required for the reader. With regard to the latter, a 10-candle power lamp, at a distance of 2 ft. from the reading surface, was worth much more, both on economical and physiological grounds, than a 50-candle power lamp at a distance of 12 ft. The local and individual lighting was in the nature of a return to the properly shaded candles of our forefathers, who certainly did not suffer from eyesight troubles to anything like the same extent as the present generation. A member of the engineering profession, Mr. McKinney, pointed out that the character of the reading surface had its importance in the matter of illumination, and urged the value of the sloping desk or table. Mr. Middleton deprecated a suggestion that arc lamps should be used in general

lighting, and said that, given good local lighting, a comparatively dim general illumination, just enabling a person to see about the room, was quite sufficient. Mr. Hopwood, of the Patent Office Library, said that what librarians required was a specification as to the minimum amounts of light needed respectively by a man puzzling out a reduced diagram, reading an ordinary book, and making a casual reference at a bookstack. The question of daylight illumination received little consideration in the discussion, but a letter was read from one engineer, who strongly urged the advantages of a glass dome, or at least of windows near the roof. He had seen compositors setting up nonpareil by the sole illumination of a dirty skylight on a dark November day, long after the street lamps were lighted. In closing the discussion, Mr. Darch expressed the opinion that the ideal for desk lighting was a lamp which could be arranged to lift up or down, so that at its lowest the illumination was 2-ft. candles, and at its highest 12-ft. candles; while Mr. Jast thought that the increasing demand of the public for brighter illumination—a demand which had grown notably during the last decade—should be resisted when it passed the physiological limit, and he drew a parallel between too abundant feeding resulting in disease and too brilliant illumination resulting in ophthalmic disorder.

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## COUNTER-ATTRACTIONS TO THE PUBLIC-HOUSE.

THE Temperance Legislation League has issued a small pamphlet by Mr. Arthur Sherwell, Liberal M.P. for Huddersfield, the arguments in which will probably commend themselves to some of those who, convinced of the evils of intemperance, believe that the problem, raising as it does very complex social and biological questions, must be attacked from several directions. Mr. Sherwell states that the League recognizes this complexity, and believes that complete victory cannot be expected until other social problems have found their solution. He adds that so long "as we have problems of poverty and of ill-housing, and a widespread ignorance of the rudiments of the laws that govern health and life, so long, doubtless, may we expect a problem of intemperance." He thinks that no one who contemplates the conditions of poverty and overcrowding in towns to-day can fail to see how enormously attractive the public-house must be to a large class of people. While admitting, as everybody must admit who knows anything of the facts, that bad housing is largely the result of drink, he quotes the statement of the Glasgow Municipal Commission on the Housing of the Poor to the effect "that the condition to which these people have reduced themselves, and the surroundings in which they find themselves, contribute to the fastening of the chains around them, and so make their return to respectability more difficult, if not impossible." He quotes also the saying of Mr. Gladstone at Liverpool in 1893 that drunkenness "often chooses for its victims, not the men and women originally the worst, but persons of strong social susceptibility and open in special respects to temptation." It is pretty certain that a good deal of drink and not a little drunkenness has its root in this otherwise commendable trait of character. Mr. Sherwell asks whether counter-attractions, though they may not touch the regular frequenters of the public-house, would not protect the young life of the nation from affording to the public-house as many recruits as in the past. It is, he says, a disquieting fact that 65 per cent. of the local branches of nine important trade unions in the United Kingdom held their meetings (in 1903) in public-houses, and it appears that the use of public-houses by friendly societies and provident and sick clubs is also widespread. He concludes, therefore, that if the interests of sobriety "are to be permanently and substantially advanced, we must have a national scheme of constructive effort that will not only meet the recreative needs of the overcrowded poor, but provide a meeting-place for thrift societies and clubs apart from the temptations of drink." The cost, he argues, should not be placed upon the rates, and he states that the proposal of the Temperance Legislation League is, that where a monopoly of the local retail liquor trade is granted to properly authorized disinterested companies (as in Norway and Sweden) the whole of the surplus profits accruing from the sale of drink under such conditions (after payment of a small and fixed rate of interest on capital, and the formation of a reserve fund to equal the amount of the paid-up capital) should be paid to the national Exchequer, and be applied as the nucleus of a fund for the establishment and maintenance of counter-attractions to the public-house, in the form of alternative resorts where full opportunity would be afforded for social intercourse and recreation apart from the sale of alcoholic drinks. Grants for this purpose would be made in conformity with a scheme to be prepared and issued under the sanction of a Secretary of State, and would have no relation whatever to the amount of the profits earned, but would be in ratio to population.

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## WEICHSELBAUM ON THE PANCREATIC CHANGES IN DIABETES.

SINCE Lancereaux and Baumel pointed out the frequent association of atrophy of the pancreas with diabetes, their results have been confirmed by many others. The view that there is such a condition as pancreatic diabetes has been generally accepted; as the pancreas has, however, frequently been found to present a normal appearance, this explanation has been supposed to hold good for only a certain proportion of cases. Opie drew attention to the importance of the islands of Langerhans in this connexion, and maintained that the disease depended upon hyaline degeneration of their epithelium, but there has been some difference of opinion as to the importance of the changes observed in them, and Dale has pointed out that their appearance depends upon whether the gland at the time of death is in a state of activity or resting. Weichselbaum has recently made a contribution to the solution of this question, basing his conclusions on the results of 183 autopsies: he found that changes in the islands of Langerhans are constant and peculiar to diabetes; to the naked eye the gland usually presents a normal appearance, but is sometimes atrophied, or may show fatty change. Microscopically there is a diminution in the number and size of the islands, but the changes are classified by him under four headings: (1) Dropsical degeneration in which the epithelial cells become translucent while some are destroyed; there may be small-celled infiltration of the capsule with hypertrophy of the connective tissue, and consequent atrophy and disappearance of the epithelial cells of the islands; this lesion is seen in subjects under 40, and is never associated with arterio-sclerosis; it may easily be overlooked. (2) Sclerosis of the islands with hypertrophy of the surrounding connective tissue and chronic interstitial pancreatitis often accompanied by fatty change; it is seen in persons over 50, and is always associated with arterio-sclerosis. (3) Hyaline degeneration of the sheaths of the vessels with consequent compression of the cells of the islands; this

is seen in advanced age, and is associated with sclerosis of the pancreatic vessels; this form is often combined with the second. (4) Haemorrhage into the islands which may occur apart from diabetes; regeneration or hypertrophy of the islands often ensues. Weichselbaum did not find analogous lesions in any other disease, acute or chronic; he accounts for the fact that many have failed to notice them on the ground that often dropsical degeneration only is present, which may easily pass unperceived, and that the lesions may be restricted to portions only of the pancreas.

## COUNTRY HOSPITALS FOR CHILDREN.

THE Royal Liverpool Country Hospital for Children at Heswall affords an object-lesson to the citizens of other large towns—most of all, perhaps, to London. The hospital, which is described and illustrated at page 505, is built on the sloping south coast of the Wirrall peninsula, and from its wards—for the use of the word "windows" would be inappropriate—the eye ranges over the estuary of the Dee to the mountains of North Wales. The institution differs from a convalescent home in that active treatment, both medical and surgical, is carried out; there is, for example, a well-appointed operating-room with the usual annexes; it differs from the ordinary hospital, inasmuch as it is built on a site every way suitable for a convalescent home, and it differs from both, since patients are admitted, not for the term of a subscriber's letter or until convalescence has commenced, but until it is complete, and the child is, in the opinion of the medical staff, fit to return to its home in the city. The principle that the children should, subject to reasonable restrictions during acute attacks or for a short period after operation, spend as much time as possible out of doors, has been recognized from the first. Since the open-air wards have been taken into use the principle has been extended to mean all their time. The children appear to like it; they look very ruddy, and seem for the most part blessed with boisterous spirits and excellent lungs, which they are encouraged to exercise by singing, and do not seem to suffer from cold. But we do not want to insist too much on this new feature of three-sided open-air wards; it might not be conveniently applicable everywhere. The respect in which the example of Liverpool, in establishing the hospital at Heswall, seems particularly worthy of imitation by other large towns, is the establishment of hospitals, as distinguished from convalescent homes, for the treatment of children in healthy, airy, bracing surroundings.

## INTERNATIONAL SURGICAL SOCIETY.

THE third congress of the International Surgical Society will be held at Brussels next September (26th to 30th), under the presidency of Dr. Lucas-Championnière of Paris. Three questions are proposed for discussion: (1) Pleuro-pulmonary surgery, to be introduced by Drs. Carré of Bonn, Gaudier of Lille, Girard of Geneva, Lenormand of Paris, Ferguson of Chicago, Van Stockum of Rotterdam, Sauerbruch and Friedrich of Marburg; (2) forms of colitis, to be introduced by Drs. Sonnenburg of Berlin, Segond of Paris, Gibson of New York, and Mr. D'Arcy Power of London; (3) pancreatitis, to be introduced by Drs. Michel of Nancy, Korte of Berlin, and Giordano of Venice. In connexion with the congress there will be an exhibition of specimens, models, apparatus, and everything relating to the pathology and treatment of fractures. There will also be a general exhibition of surgical instruments and apparatus. The General Secretary is Professor A. Depage, 75, Avenue Louise, Brussels, to whom all communications relative to the meeting should be addressed.

## PATENT MEDICINES IN WESTERN AUSTRALIA.

WE learn from the *Australasian Medical Gazette* that Western Australia, which already has the most stringent medical Act of all the Australian States, is now taking the lead in passing the most drastic legislation bearing upon the patent and quack medicine trade. In the course of a debate on the new Health Bill at present before the Legislative Assembly, a new clause was inserted which provides that any person who publishes any statement intended to promote the sale of any preparation or medicine for the prevention, alleviation, or cure of any human ailment or physical defect which is false in any material particular relating to the ingredients, composition, nature, or operation of the article, or to the effects following its use, shall be guilty of an offence. Newspapers would be held liable if they published such advertisements after the principal medical officer had given a written warning that the statements therein contained were false. The penalty for the adulteration of food or drugs is £50 for the first offence, and six months' imprisonment for the second.

## CANCER AND HEREDITY.

THE fifth report of the Cancer Commission of Harvard University[1] contains many papers of interest and well deserves careful study by all those who are following the research now proceeding in most countries into the nature of the disease. Perhaps the most suggestive articles are two by Professor Tyzzer on the tumours occurring spontaneously in mice and on the varying susceptibility to transplantable growths exhibited by different races of these animals. He investigated the life-history of a family of mice consisting of 100 individuals, a *post-mortem* examination being made immediately after the death of each. Three were still alive at the date of the paper, and among the remaining 97 growths had developed in 9 out of 68, the offspring of parents neither of which had a tumour, while of the 29 of which one of the parents had a tumour a growth had appeared in 11; thus a cancer developed in only 13 per cent. of Class I, as against 39 per cent. in Class II. As the author himself suggests, the numbers are too small to form a solid basis for deduction, but the figures are certainly striking, and it is not improbable that the modern view that heredity has but little influence in regard to susceptibility to cancer may require to be modified as a result of experimental research. It is rather surprising that so large a number of mice are described as having been spontaneously affected by some form of malignant growth and the possibility of contagion can scarcely fail to suggest itself. In this respect the experience of various laboratories seem to differ. More information is wanted as to the frequency of tumours in mice living under more natural conditions. Some very curious facts were also observed by Tyzzer as a result of inoculations with a tumour originally occurring in Japanese waltzing mice, and which, while giving practically 100 per cent. of successes on transplanta-

[1] Fifth Report of the Cancer Commission of Harvard University. Medical School of Harvard University, Boston, U.S.A. 1909. (Pp. 290. 4to.)

tion into animals of the same breed, in no case was the growth able to establish itself in common mice. It was found that hybrids bred from common mice with the Japanese waltzing variety, whether the latter were fathers or mothers, were as susceptible to the tumour as the pure-bred Japanese. On the other hand, when these hybrids were bred together, the second generation showed an absolute insusceptibility, and the same negative result followed on attempts to transplant the growth into the third and later generations. It is difficult to see how these facts can be explained by any accepted theory of heredity. Seeing that the whole of the first generation of hybrids proved to be susceptible to the tumour, it is evident that, according to the Mendelian law, it was to be expected that a considerable number of the second generation would have been equally susceptible. Not the least among the difficulties surrounding the study of cancer by experiments on the lower animals is the specificity of the tumours, in so far as they appear to be only capable of successful transplantation into individuals of the same race, and often only of special varieties of that race. The unexpected results of the experiments just mentioned seem to import fresh complications into the problem. In a paper by Professor Burgess the view is put forward that the degeneration of the inoculated tumour elements in insusceptible animals is due to an inflammatory exudation, which impairs their nutrition, and not, as has been often held, to the fact that no stroma is supplied by the host. This conclusion, which has been reached by a study of the conditions in the second generation of hybrids mentioned above, suggests the existence of a more active immunity in some animals than has hitherto been supposed. An investigation into the effect of trypsin in preventing the development of morbid growths resulted in the conclusion that "in these experiments trypsin had no appreciable effect in causing cancer to disappear."

### ANTIVIVISECTION IN AMERICA.

A BILL was introduced into the New York Assembly on February 1st, on behalf of the Antivivisection Society and the Society for the Prevention of Cruelty to Animals. It provides for the appointment of a commission consisting of seven members—two physicians or scientific men residing in New York, two active members of some organization of the State of New York having for its purpose the prevention of unnecessary cruelty in vivisection; two lawyers practising within the State; the remaining member of the commission to be "appointed at large." The bill has been referred to the Assembly Committee of Public Health. The danger of the bill, as the *Medical Record* points out, lies in its apparent harmlessness; it asks merely for an investigation. In regard to this our contemporary quotes the following suggestive utterance in the *New York Times*: "The passage of a similar measure in Great Britain was followed by a train of consequences that checked medical progress in that kingdom. Had the forces which that investigation let loose in Great Britain operated on the Continent and in the United States, the cures that have been perfected, and are being perfected, for yellow fever, typhoid, diphtheria, meningitis, pneumonia, tuberculosis, infantile paralysis, cancer, and grave diseases of the blood, would have been prevented, and progress in modern surgery would have been achieved at an added sacrifice of human life."

### COMMISSIONS.

ON February 18th we called attention under this heading (page 416) to a case in which a maker of corsets had sent a circular to a medical man offering to give him a commission of 25 per cent. on all first orders of clients recommended by him. We have this week received from correspondents in three West Yorkshire towns specimens of a circular issued by another maker of corsets, offering in respect to every customer introduced by the doctor a commission of 10 per cent. on the amount paid for the corset. Enclosed with the circular is a a book of numbered "introduction" forms with a counterfoil. Each book contains some twenty forms, and the numbers in one are in the three thousands, and in another in the seven thousands, so that if the books have been numbered consecutively the offer must have been pretty extensively made. The circular adds: "We feel sure that in adopting the methods suggested you will be greatly benefiting your clients, and at the same time combining a mutual advantage." Another paragraph in the circular runs: "Any suggestions you can give me regarding this matter will be greatly appreciated." We do not know what proposals may so far have been made, but our suggestion would be that the circular and the introduction forms should be at once withdrawn with an apology to the medical profession for the unfortunate mistake made in its issue.

SIR CLIFFORD ALLBUTT, Regius Professor of Physic, Cambridge, will give an address on Arterio-sclerosis and the Kidneys at the next meeting of the Kensington Division, which will be held at the Kensington Town Hall, High Street, Kensington, on Friday, March 10th, at 4.30 p.m. Members may introduce visitors at this meeting. Dr. Batty Shaw, Dr. C. O. Hawthorne, and others who have made a special study of the relations of arterio-sclerosis, high blood pressure, and renal disease, will take part in the discussion.

THE premises erected for the New South Wales Branch of the British Medical Association (to be known as the British Medical Association building) at Sydney are nearing completion. The *Australasian Medical Gazette* of January 20th states that the whole of the first floor will be used for the purposes of the Branch, including meeting hall and library, reading rooms, and offices. The hall has a floor space of about 1,450 sq. ft., and will seat from 200 to 250 persons. The annual meeting will be held in it in March. Messrs. Allen and Hanburys, Limited, took possession of the southern half of the ground floor on January 6th, where the surgical instrument department of their business will in future be conducted. Several other tenants were expected to move in on February 1st. One thousand and twenty-three (1,023) debentures out of the 1,200 authorized have been issued.

## Medical Notes in Parliament.

**Insurance against Sickness and Invalidity.**—Mr. Booth asked the Chancellor of the Exchequer whether his attention had been called to the statements in the Press purporting to give details of his proposals for State insurance against sickness and invalidity; whether they were issued with his authority; and if he could state how soon the House would be placed in possession of the main outlines of his scheme as disclosed in confidence to a certain representative of a particular friendly society. Mr. Hobhouse, Secretary to the Treasury, answered that the Chancellor of the Exchequer's attention had been called to the statements referred to, which were issued entirely without his authority or knowledge.

**The Nurses' Registration Bill** was presented and read a first time on Monday last. It is described as a bill to regulate the qualifications of trained nurses, and to provide for their registration, and is backed by Mr.

Munro-Ferguson, Sir James Gibson, Sir Luke White, Mr. Rainy, Dr. Addison, Mr. Bryce, Viscount Morpeth, Mr. Scott Dickson, Mr. Remnant, Mr. Younger, Mr. Ramsay Macdonald, and Mr. Field. The bill was introduced on behalf of the Central Committee for the State Registration of Nurses, of which Lord Ampthill is Chairman, and is supported by the following societies, which appoint the delegates constituting the committee: The British Medical Association, the Matrons' Council of Great Britain and Ireland, the Royal British Nurses' Association, the Society for the State Registration of Trained Nurses, the Fever Nurses' Association, the Association for Promoting the Registration of Nurses in Scotland, the Scottish Nurses' Association, and the Irish Nurses' Association. The second reading was put down for Monday next.

**Poor Law Commission (Cost).**—Mr. Pike Pease asked the President of the Local Government Board whether he could state the total cost of the recent Poor Law Royal Commission for England and Wales. Mr. Hobhouse replied that the total expenditure to date was:

| | £ |
|---|---|
| From Temporary Commissions Vote ... | 34,573 |
| From Stationery Office Vote (net) ... | 14,000 |
| From Public Buildings Vote ... ... | 4,330 |
| Total ... ... ... ... ... | £52,903 |

Some small disbursements not expected to exceed £100 remained to be made.

**Water Supplies Protection Bill.**—Mr. Burns stated, in reply to Mr. Remnant on Monday, that, in pursuance of an order of the House, a return was being prepared relating to the water supply of every district in England and Wales. This would include information as to the quantities of water now being supplied in each district, and as to what further quantities could be supplied from sources at present in use, together with information as to the character and situation of these sources. He had also obtained the authority of the Treasury to the appointment of a geologist on the staff of the department. He was not without hope of introducing a bill giving effect to the recommendations of the Select Committee on Water Supplies (Protection) Bill, 1910, and earlier Commissions.

**Pauper Children.**—Mr. Burns stated on Monday that the number of pauper children over 3 years of age and under 16 who, on July 1st last, were maintained in institutions was 59,496, and, excluding those in infirm wards or receiving wards, the number of these children maintained in workhouses was 9,223, being 16 per cent. of the total number. The large majority, therefore, were in other establishments, which included scattered homes and the various classes of separate schools and cottage homes.

**Small-pox in London.**—Mr. H. Lawson asked the President of the Local Government Board whether his attention had been called to the outbreak of small-pox in the East End of London; and whether he was satisfied that all proper steps were being taken to deal with it by the Metropolitan Asylums Board and the other local authorities. Mr. Burns said that his attention had of course been drawn to this outbreak, and his officers had been inquiring into it. The reports he had received showed that all the authorities concerned were, through their officers, taking active measures to deal with the outbreak. Should the disease assume wider dimensions no doubt these measures might require to be supplemented.

**Vaccination and Small-pox.**—Mr. Crawshay-Williams asked whether any cases of small-pox had occurred in England among children since the passing of the Vaccination Act, 1907; and, if so, whether any of those patients had been exempted from vaccination under the Conscience Clause of that Act. Mr. Burns said that cases of small-pox had occurred amongst children since the passing of the Vaccination Act. Their number could not be given, but in the two years 1908 and 1909 the number of deaths from small-pox of children under 15 recorded by the Registrar-General was six. Four of these cases were stated to have been unvaccinated, in the other two cases it was doubtful whether they had been vaccinated or not. He had no information as regards these six deaths, whether certificates of exemption from vaccination had been obtained.

**Arm-to-Arm Vaccination.**—Mr. Weir asked the Lord Advocate, in view of the fact that arm-to-arm vaccination had long since been abolished in England with satisfactory results, if the Secretary for Scotland would take such steps as might be necessary to secure its abolition in Scotland. The Lord Advocate answered that the practice of arm-to-arm vaccination was almost if not quite obsolete in Scotland, but it could not be directly abolished without further legislation. The Local Government Board invariably recommended the use of glycerinated calf lymph, and supplied it free of charge to parish vaccinators. He might add that during the last two years no applications for humanized lymph were received by the department.

**Osborne and Colonel Kilkelly's Resignation.**—Last week Mr. Douglas Hall inquired as to the complaints made of interference on the part of the Office of Works with the Medical Superintendent at Osborne. Mr. Dudley Ward said that, as he had already informed the hon. member, the First Commissioner had a prolonged interview with Lieutenant-Colonel Kilkelly and made full inquiry personally into his complaint. As Lieutenant-Colonel Kilkelly addressed his complaint and request for an interview to the First Commissioner personally, Lord Beauchamp dealt with the matter himself. Lieutenant-Colonel Kilkelly had been informed of the result of the First Commissioner's inquiry He had further been informed that the House Committee, to whom Lord Beauchamp also referred his complaints for investigation, arrived at the conclusion that they were without foundation. Lieutenant-Colonel Kilkelly made no application to attend any meeting of the committee, and Lord Beauchamp did not think it necessary to suggest that he should do so, as he apparently preferred to interview the First Commissioner. In answer to a further question as to Colonel Kilkelly's position, Mr. Dudley Ward said that Lieutenant-Colonel Kilkelly occupied the position of surgeon-lieutenant-colonel in the Grenadier Guards, his pay being at the rate of £1 10s. per diem. He retired on a pension of £1 per diem. On becoming House Governor and Medical Superintendent at Osborne, he was given a salary of £600 per annum with quarters, fuel, and light, less 10 per cent., in accordance with the terms of the Superannuation Act of 1887. The First Commissioner was not aware that Colonel Kilkelly had suffered any forfeiture of pay or pension. All reports received by the First Commissioner were confidential, and he did not think it would be in the public interest to treat them otherwise.

**Standard Bread and the Navy.**—Last week Sir C. Kinloch-Cooke asked whether, in view of the higher nutritive value of bread containing the germ and inner cuticle of the wheat berry over ordinary white bread, he would consider the desirability of providing that, in Admiralty contracts, no bread and flour should be supplied from which these constituents have been eliminated. Mr. McKenna said that it was the practice until recent years to supply the navy with "stone-ground" flour produced in Government mills at the victualling yards; but there was considerable prejudice amongst the men against the dark-coloured bread and puddings which this flour produced, and very little was consumed. It was consequently decided to dismantle the Government mills, and to purchase from millers the "roller-ground" flour which was used in the private trade. The bread, etc.,

made from this flour was very popular in the navy. Before eliciting the present opinion of the fleet on the subject it was proposed to wait until the Local Government Board experts, who were at present investigating the comparative nutritive qualities of the various descriptions of flour, had made their report. Mr. Burns, in answer to a question on the same day, said that he hoped a preliminary report on the subject would be shortly issued. Mr. Kellaway pointed out that in the opinion of some of the leading millers in the country the so-called standard bread consisted of ordinary bread made with ordinary flour to which a little pig meal had been added. Mr. McKenna said he was not aware of that. He could only repeat that the bluejacket who had this bread did not seem to like it.

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**International Exhibition of Hygiene, Dresden.**—Mr. Byles asked the President of the Board of Trade upon what grounds the promoters of the British exhibit at the forthcoming International Exhibition of Hygiene at Dresden were refused by his Department the grant which they asked for, although similar assistance had been given to the exhibition in Turin; and whether such discrimination had been interpreted in any quarter as a slight upon the German nation. Mr. Buxton replied that at the time when this country was invited to take part in the Dresden Hygiene Exhibition, the Board of Trade had already entered into engagements to organize official British sections at International Exhibitions at Brussels, Buenos Aires, and Vienna in 1910, and at Rome and Turin in 1911. In these circumstances and in view of the exacting demands made upon British manufacturers by too frequent participation in international exhibitions the Board of Trade felt unable to undertake, or to give official support to, the organization of an exhibit of commercial products at the Dresden Exhibition of Hygiene. He had, however, expressed to the organizers of the exhibition in London the cordial interest which His Majesty's Government take in the scientific side of this undertaking. He was convinced that no fair-minded person could possibly have construed the action of His Majesty's Government in the manner suggested in the last part of the question.

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**Measles at the Royal Naval Colleges.**—Last week Mr. W. J. Wilson asked a question as to the possibility of measles being introduced through the insanitary surroundings of the places where the cadets' uniforms were made, and the First Lord replied that the Admiralty had no reason to suppose that the firms who were employed by the parents of naval cadets to make uniforms did not take proper precautions for the protection of their customers, or that infectious disease had ever been introduced into the colleges in the manner suggested.

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**Public Health Department of Egypt.**—Mr. Ramsey Macdonald asked whether, with reference to the resignation of Drs. E. H. and H. C. Ross from the Public Health Department of Egypt, Sir Horace Pinching, the late Director-General, was consulted upon the question of what offers he made to the Drs. Ross which induced them to surrender positions in the navy in order to join the Egyptian service; whether Sir Horace Pinching had, or had not, admitted that he offered them permanent appointments in the Egyptian service; and whether the Government proposed to accept responsibility for the actions of its responsible officers and accredited agents in Egypt. Sir E. Grey said that Dr. E. H. Ross held an appointment on the permanent staff of the Egyptian Public Health Department until his resignation, which, it was understood, took effect from the beginning of this month. From a letter addressed by Sir Horace Pinching to Dr. H. C. Ross (dated May 25th, 1906), a copy of which had been communicated to him, it was evident that this gentleman's appointment was temporary. He would refer the hon. member to the reply he returned to his question of May 25th, 1909. The reply to the last part of this question was in the affirmative, but he must point out that officials of the Egyptian Health Department were in the service of the Egyptian, and not of His Majesty's, Government.

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**Plague.**—Last Monday, in reply to a question by Mr. Lonsdale, the President of the Local Government Board stated that there was no foundation for the statement that cases of plague had recently occurred in London.

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**Sleeping Sickness, Rhodesia.**—In answer to Mr. Nield, on Monday, Mr. Harcourt stated that considerable areas in the Luapula and Luangwas Valleys had been declared sleeping sickness areas. He did not think that cultivation was necessarily suspended, though it was necessary sometimes to clear areas near the rivers, and the disease was a most serious hindrance to ordinary life and industry. Travelling was forbidden without permits, villages had been removed at the expense of the Government, and the British South Africa Company was taking various other measures in co-operation with the Belgian authorities for dealing with the sickness. The company had strengthened its medical staff, and was now sending out a special commission of investigation with a scientific staff and a fully equipped laboratory. He was not aware of any special destitution, certainly not among the Europeans, of whom there were very few in North-Eastern Rhodesia. But the prevalence of this terrible disease must necessarily cause suffering among the populations affected. In reply to another question, he was indicating the measures taken by the British South Africa Company, which was responsible for the government of the country, to grapple with the disease.

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**American Imported Meat.**—Last week Mr. Hunt asked as to the use of borax in preserving meat sent from America, while it was criminal to use it in America, and Mr. Burns replied that he was advised that, so far as the public health was concerned, these matters were sufficiently dealt with by the regulations which had been made under the Public Health (Regulations as to Food) Act, 1907. He did not consider that further steps were at present called for. In answer to a further question as to the marking as fit and wholesome food carcasses from which tuberculous parts and malignant tumours had been removed in America, and how the entry of such meat could be prevented, Mr. Burns said that, under the Public Health (Unsound Food) Regulations, 1908, the medical officer of health was empowered to seize any article of food landed within the district which was unsound, unwholesome, or unfit for human consumption. He did not at present think it necessary to make further provisions on the subject. He might observe that the rules laid down by the United States authorities governing the inspection of carcasses of cattle intended for export, either interstate or foreign, were not less stringent than those observed in this country. In the case of the pig the United States standard was less stringent than that obtaining in this country, and, in accordance with the provisions of the Foreign Meat Regulations, American pork, fresh, chilled, or frozen, was only admissible if it came in the form of the whole carcass, so as to permit of examination for disease. He had nothing to do with the American regulations; but this he did know, that there was no country in the world where the regulations as to the importation of unsound, unfit, and unwholesome food were as stringently administered as in this country.

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**Chinese Pork.**—Mr. Fell asked as to the ultimate disposal of 600 carcasses of Chinese pigs condemned at Liverpool last year, and Mr. Burns replied that he understood from the medical officer of health that all the carcasses were destroyed, the fat being used for lubricating purposes, and the rest of the carcass rendered into manure. The processes were under the supervision of an inspector of the local authority.

# England and Wales.

[*From our special correspondents.*]

## MANCHESTER AND DISTRICT.

### The Early Notification of Births Act.

A proposal for the adoption of the Notification of Births Act in Manchester came before the city council at its last meeting, but was adjourned on a point of order to the March meeting. In the meantime the Joint Committee of the Manchester and Salford Divisions of the British Medical Association met and resolved unanimously to offer a strenuous opposition to the proposal, and the following circular letter has been sent to every member of the city council:

BRITISH MEDICAL ASSOCIATION.
*Joint Committee of the Manchester and Salford Divisions.*

Manchester,
*February*, 1911.

Dear Sir,

The Joint Committee of the Divisions of the British Medical Association, which directly represents the great bulk of the medical profession in Manchester, has heard with regret that a proposal is now before the City Council to adopt the Early Notification of Births Act, and we are instructed to call your attention to some reasons why the medical profession is resolved to offer the most strenuous opposition to the proposal.

1. In the first place, it would involve a serious breach of professional confidence for a medical attendant to notify births which he attends. Our committee feels that the sanctity of the confidential relationship between patient and doctor, most particularly in matters relating to sex, should be held inviolable, and that no Act of Parliament could possibly justify the breach of such relationship. We are confident that you must be personally acquainted with numerous families where the notification of a birth by the medical attendant would be greatly resented, seeing that the chief object of the notification is to enable a subordinate official to make a domiciliary visit. Except in cases of extreme necessity, as for the detection of crime, our committee strongly objects to medical men being compelled to lay open the private affairs of their patients to officials.

2. Again, it is felt that the duty of notification is one which, if required at all, ought to be imposed on the parents and not on the medical attendant who learns the secrets of his patients through the necessities of his calling.

3. Further, it is altogether unjust that the State or the municipality should impose on medical men this or any other duty without a fee. The tendency to impose work for the community on the profession has increased so much of late years that the British Medical Association has been driven in some cases to adopt measures which it would gladly avoid. In the present case, however, the offer of a fee would by no means remove the objections stated above, though in cases where the patient agreed to notification by the medical attendant a fee ought to be paid.

4. Again, regard being paid to the object of notification, our committee claims that cases of confinement that are attended by medical men are not cases where any good could be derived from early notification of births. The patients remain for some time under the personal care of the medical man, and no visits by health visitors or other officials are necessary; such visits would in fact generally not be accepted.

Finally, we are bound to say that the imposition of the duty of notification on the medical profession would be greatly resented, and there is some ground for fear that the resentment might be carried to the extent of refusing at any cost to comply with the requirement. But even short of that, the adoption of the Act in Manchester would not tend to improve the relations between the profession and the health authorities.

We are therefore instructed to express the hope that you will endeavour to be present and vote against the adoption of the Act when the subject comes before the city council.

Yours faithfully,

T. A. Helme, M.D., M.R.C.P., Chairman.
R. G. McGowan, M.D.,
J. H. Taylor, M.A., M.B., } Hon. Secs.

299, Eccles New Road, Salford.

### The Education Committee and the Hospitals.

At the last monthly meeting of the Manchester Education Committee a discussion took place on an application from the Manchester Children's Hospital for financial assistance from the education authority, the ground of the application being that school children were referred in such large numbers to the hospital for treatment. Councillor Woollam said that, owing to the medical inspection of school children, the claims of the hospitals had increased very considerably. It was no use having children inspected unless they gave poor parents an opportunity of obtaining treatment, and an application from so deserving an institution as the Children's Hospital ought not to be allowed to pass without some inquiry as to how far the committee was in a position to give assistance. He suggested that the whole question of contributions to hospitals and dispensaries should be considered. The Chairman, Sir T. T. Shann, pointed out some difficulties. For instance, there was the difficulty of the ordinary medical practitioner, who thought the cases ought to be sent to him. The committee, however, had nothing to do with that, as the parents said they could not afford to call in a private doctor and there was the hospital to go to, where they could get treatment for nothing. The authority already paid something to some hospitals, but the question of expense must be considered, and the Government auditor might surcharge anything paid unless the committee got special benefits. Councillor Meadowcroft suggested that the matter would better be dealt with by the Town Council, and that a report showing the amount already paid in this way should be prepared. It ought to be remembered that the parents already contributed to the Hospital Sunday and Saturday Funds, and ought not to be asked to contribute in so many ways. Miss Dendy thought the parents in Manchester did not contribute as much as they ought to the hospital funds, and hundreds of people were obtaining the benefits of the hospitals who never paid a farthing to help them in any way. Mr. Lane Scott said the committee was by no means sure of its ground. Some of the other committees which contributed to the hospitals did not come under the Government auditor, but the Education Committee did, and was liable to be surcharged. In fact, a few years ago the auditor gave a hint that the committee must withdraw the subscription from certain dispensaries where children were assisted. He did not think the hospitals ought to be too insistent in this matter, for though the committee had no power to contribute to the hospitals themselves, it had power to establish two surgeries and clinics, and he thought the medical profession would welcome action of that sort. Sir A. Hopkinson said he would be would be sorry to think that this was merely a professional matter. The hospitals were now extremely short of money, and yet new work was continually being put upon them which they could not possibly refuse because they were children's cases that required the best possible skill. The hospitals needed some support, and the community as a whole ought to do more to meet the additional burdens which ought not to be put on the shoulders of the willing horse. The Chairman said he would be sorry to see the hospitals rate-aided, as it would do away with the voluntary feeling and the interest in the work. The working people, however, were not doing what they ought to do. He would be sorry to see the Education Committee with a surgery or clinic under its care, as it had enough to do already. He quite sympathized with the medical profession, who paid rates and had to live. Miss Ashton considered that to put the cost of the medical treatment on the education rate was false economy. The cost of hospitals and the running of clinics ought not to come out of the education rate, as it gave an entirely false idea of the cost of education. Medical treatment was not education, and she strongly resented all such matters being put upon the Education Committee.

It may be pointed out that the Education Committee seems entirely to have overlooked the fact that at present it is practically thrusting the work of treatment on to the shoulders of the unpaid hospital staffs. This will not be tolerated much longer in Manchester. The great majority of the cases of children found on

inspection to be defective do not require any specialist treatment. They could quite well be treated by private practitioners, and there is no reason why public charities or the hospital staffs should accept a responsibility which can only properly belong to the education authority. The Joint Committee of the Manchester and Salford Divisions of the British Medical Association has been driven to regard this matter as one of urgency, and has fully endorsed the decision of the British Medical Association "that the Association should oppose the reference of school children found upon medical inspection to be defective to public medical charities for treatment, whether or not accompanied by payments or subsidies." It has therefore been decided to hold a general meeting of the whole of the profession of Manchester to consider the matter. Sir Victor Horsley has kindly consented to address the meeting, which is arranged to be held on Wednesday, March 8th, at 4 p.m., in the Memorial Hall, Albert Square, Manchester. All members of the medical profession are cordially invited and urged to be present, whether members of the British Medical Association or not. The chair will be taken by Dr. T. A. Helme, Chairman of the Joint Committee.

## PORTSMOUTH.

### MEDICAL TREATMENT OF SCHOOL CHILDREN.

THE report of Dr. Victor Blake, school medical officer for Portsmouth, shows that during the last two years out of 3,567 cases recommended for treatment only 985 received it; 1,029 cases were lost sight of, and in respect of 1,553 it was ascertained that they had not received treatment. Dr. Blake rightly condemns this state of things, and there appears to be a general agreement in Portsmouth that a school clinic should be established, but as to the manner in which it should be organized and conducted there is a difference of opinion.

The Portsmouth Division of the British Medical Association has presented to the Town Council a scheme founded upon the principles approved by the British Medical Association, and proposed that it should be administered by a committee composed of equal numbers of the Portsmouth Education Authority and the Portsmouth Division of the British Medical Association. It suggested that provision should in the first instance be made for disorders of the eyes, ears, nose and throat, and for ringworm. The scheme would allow of expansion to include the treatment of teeth when the Education Authority considered it desirable that this should be done. It was recommended that suitable rooms should be provided by the Portsmouth Education Authority, equipped with the necessary fittings for examination and treatment of cases, including $x$-ray apparatus for the treatment of ringworm. It was further recommended that the clinic should be staffed by members of the profession resident in Portsmouth, each member undertaking to devote two or three hours on one afternoon in each week for at least forty-four weeks in a year to his department. It was further suggested that the number of the staff required would be two for eye diseases, two for ear, nose, and throat disorders, one for ringworm, and two for giving anaesthetics. The remuneration proposed was £50 to each member per annum, except as regards ringworm, for which a fee of 1 guinea a head was suggested. It was also proposed that the Education Authority should supply a nurse for six half days a week, and a servant if necessary.

Dr. Blake has recommended the Town Council to establish a school clinic on a totally different principle, the main point of which would seem to be that the cases should be treated by the nurses under the supervision of the school medical officers. He says of the scheme of the Portsmouth Division:

> I have come to the conclusion that there is much that is unnecessary in it; and that the appointment of part-time local practitioners is not required, as the treatment of such cases as of sore eyes, sore heads, discharging ears, skin disease, scabies, ringworm, verminous condition, already diagnosed by the school medical officers, requires only the necessary supervision by them of the school nurses, who would carry out by daily and constant attention the treatment ordered. Without going into any further details in connexion with the scheme presented, I am of opinion that the work of the school clinic should be dealt with purely by the school medical officers, and all that is further required is the requisition of the services of a specialist in eye diseases, to carry out refraction work, and for the prescribing of suitable glasses.

A deputation from the Portsmouth Division was received by the School Clinic Subcommittee of the Portsmouth Education Authority on February 24th. There were present: Dr. W. P. McEldowney (chairman), Drs. J. Ward Cousins, Jas. Green, J. Blackwood, D. A. Sheahan, A. Milne Thomson, and L. K. H. Hackman. Dr. McEldowney, in introducing the deputation, spoke of the acknowledged necessity of a school clinic, and said that there could be no doubt that the great difference between the numbers of those recommended for treatment and those actually treated was due to the want of a routine system and a definite place in which to treat the cases. The great desire of the local medical profession was to evolve a system which would lead to harmonious working. He laid stress on the fact that a similar scheme was working in London, and he asked the permission of the Chairman of the School Clinic Subcommittee (Alderman T. Scott Foster, Mayor) to be allowed to introduce Dr. E. Rowland Fothergill, late of Wandsworth, who was familiar with the practical foundation and working of that particular scheme.

On the invitation of the Mayor, Dr. Fothergill described the Wandsworth School Clinic, which he said was working well and would develop a dental side from May 1st. He laid stress on the fact that in Wandsworth the clinic was entirely under the management of the House Committee, on which the London County Council had no representative. This House Committee was elected by the local medical profession. He claimed that such a scheme was more economical in working than by permanent officials, and enforced the point that the medical inspector should not advise or treat cases. He alluded to the waste of time in carrying out the double duties of inspection and treatment by one man, and said that such a course of action was unfair to the general medical practitioner, who was quite capable of undertaking the treatment required. He stated that the London County Council had given a grant of £100 for instruments, drugs, etc., and £50 had been raised privately for furnishing the rooms; the cost of treatment was estimated at 2s. a head, and not less than 1,500 cases in the year were guaranteed. He spoke of the usefulness of care committees in following up cases treated in the clinic, and also those treated privately. The nurse was provided by the London County Council, but was under the strict control of the medical staff. He said that about 95 per cent. of the children required dental treatment, and a dental inspector would be appointed in the future. They had no experience as yet of the doctors being changed, but he did not think that such changes would lead to any special difficulty. He laid stress on the fact that under their rules no operation was to be performed which would require detention and special after-treatment.

Dr. Sheahan spoke of the necessity for studying economy with efficiency, from the ratepayer's point of view. He insisted on the competency of the local medical practitioners to do all that was required, and the danger of putting too much work and responsibility on the nurse.

Dr. J. Ward Cousins urged the necessity of making provision for sudden emergencies, and asked if Dr. Fothergill had any experience of such in Wandsworth. Dr. Fothergill answered, "No," and referred to their rule governing the class of operations to be undertaken.

Dr. James Green said that treatment and inspection by one man was diametrically opposed to the whole policy of the British Medical Association.

Dr. A. Milne Thomson was of opinion that treatment could be carried out more efficiently by a staff of experienced general practitioners than by an equal number of permanent officials.

The chairman of the subcommittee, the Mayor, invited Dr. Victor Blake to make any comments on the discussion, but he declined.

## LIVERPOOL.

### Annual Meetings of the Hospitals.

The medical charities have now held their annual meetings, in which are brought forward an increased amount of work done in the past year, and varying degrees of indebtedness, with the usual appeal for support.

The Royal Infirmary has announced that the new out-patient department will be formally opened by the Earl of Sefton on March 29th. The building, with furnishings and fittings, has cost £30,000. In the past there have been about 80,000 attendances annually, but the new buildings will probably lead to an increase in the numbers of out-patients.

The Royal Southern Hospital formally opened a new out-patient department in November last, but work has not yet been started in it. The hospital is about £8,000 in debt, and appeals for funds.

The Hospital for Women, Shaw Street, made a special appeal during last year to wipe off a debt of £800; as a result £1,463 were subscribed, so that the hospital, almost for the first time in its history, started the year with a small balance to its credit. The treasurer announced that Sir William Tate had sent a cheque for £250 towards the expenses of the present year. The expenditure at this hospital is £4,500 per annum, and the subscription list only amounts to £700; the rest of the income has to be obtained from fluctuating and precarious sources.

The Samaritan Hospital for Women found itself with a debt of £260, which was met by a cheque for the amount from its chairman, Mr. Charles Cain.

At a meeting of those interested in the Children's Convalescent Home at West Kirby it was announced that Mr. E. F. Callister had offered £800 for the erection of an open-air ward. There were alterations in the present building required which would cost £650, which, with an overdraft at the bank, would amount to £1,200; towards this one of the committee, Mr. C. Boult, had promised £100. The work of the matron, Miss Giddings, who has served for twenty-three years, and is now retiring, was highly praised at the meeting.

The annual meeting of the Dental Hospital has given rise to some correspondence in the daily press, in which it has been suggested that the hospital is used by a class which should not need charity; that charges made by the hospital are such as to prevent the poor from making use of it, and that the hospital thus competes unfairly with the younger dentists in practice. A new hospital was opened last year and forms part of a dental school, students doing a large portion of the work.

## LONDON.

### Small-pox.

At a meeting of the Metropolitan Asylums Board on February 25th, Canon Sprankling, Chairman of the Hospitals Committee, said that at that time the cases of small-pox were confined practically to Mile End. There were two from other districts—one from Poplar and one from St. George Hanover Square, but the latter could be traced to the East End infection. It was further reported that in May, 1909, the managers had approved of the plans for the adaptation of the shore buildings at Long Reach for small-pox purposes. The Local Government Board, whose sanction was required, had asked for certain details, and the matter had remained in abeyance until last July, when the managers decided that the Joyce Green Hospital, when not required for small-pox purposes, was to be regarded as part of the fever hospital accommodation, and that the Long Reach Hospital and the shore buildings should in future be the only accommodation permanently reserved for small-pox. The Hospitals Committee reported that, as it was proposed to keep the shore buildings in continuous use, it was desirable to make certain alterations to render the buildings more comfortable. As soon as the sanction of the Local Government Board to the proposed alterations, which will involve a small extra expenditure, is obtained, the work will be proceeded with; meanwhile, the small-pox patients are being admitted to the Joyce Green Hospital.

A statement with regard to the small-pox epidemic was made by the Chairman of the Public Health Committee at the meeting of the London County Council on February 28th. After defining the relations of the Council and the Metropolitan Asylums Board, Mr. Freeman Barrett said that when information of the outbreak reached the Council on February 21st, a medical officer visited the Mile End Infirmary, and the tracing of contacts led to additional cases being found. Persons at common lodging-houses and shelters had been examined, and everything possible was being done to check the outbreak. The disquieting circumstance was that cases had been found in other districts besides that in which the epidemic broke out. Three cases had been notified in Bethnal Green, one in Westminster, and one at Deptford. It was thought that some of these cases might have received infection from persons in Lancashire, where also small-pox had occurred. That, of course, was only a theory at present.

It appears that altogether down to noon on February 28th, 47 cases of small-pox had been notified; 3 cases were admitted to Joyce Green Hospital on that day, 1 from Bethnal Green, and 2 from Mile End. Two deaths had then occurred, one of a vaccinated woman about 60 years of age, and the other an unvaccinated child.

### Epidemic of Measles.

Measles is prevailing in an epidemic form not only in Edinburgh, Dublin, and Newcastle, but also in London, where at the beginning of this week there were 557 cases under treatment in the hospitals of the Metropolitan Asylums Board. We have received the following letter from Mr. T. Duncombe Mann, Clerk to the Board, with regard to the regulations for the admission of cases of measles or whooping-cough to the Board's hospitals:

Misunderstanding seems to have arisen in some quarters as to the scope of the order recently issued by the Local Government Board empowering the Metropolitan Asylums Board to receive into their hospitals cases of measles and whooping-cough. I should therefore be glad if you would kindly allow me to inform medical practitioners and others through your columns that this Board are only authorized to admit poor persons, under 16 years of age, on the order of a relieving officer, or master of a workhouse, or medical superintendent of an infirmary or district sick asylum, or the superintendent of a Poor Law school, accompanied by the certificate of a Poor Law medical officer.

# Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

### Registration of Scottish Nurses.

The annual meeting of the Association for the Promotion of the Registration of Nurses in Scotland was held in the Medical Theatre of the Edinburgh Royal Infirmary on February 24th, when there was a large attendance of representatives from various parts of Scotland. Lord Inverclyde, president of the association, was in the chair, and explained the nature, scope, and work of the association. The various societies interested in the question of registration of nurses had formed a joint committee under the chairmanship of Lord Ampthill, and had agreed to support one bill instead of each promoting a separate bill. His lordship expressed the association's gratitude to Lord Ampthill for presiding at the various meetings, and by his tact and firmness in bringing all parties together. The bill as drafted would, he hoped, be presented to the House of Commons without any great delay, but in face of the Government business it might be some little time before it was read. It was a bill of compromise all round, and there had been no difficulty in finding members of Parliament representing every shade of politics to back it.

Dr. D. J. Mackintosh (Glasgow), the Honorary Secretary, submitted the report for the past year. There were, he said, over 2,000 matrons and nurses members of the association, 234 nurses having joined during the year. These figures did not include a large

number of prominent medical men who were members of the Executive Committee and took a deep interest in the training and registration of nurses. He referred to the various meetings and conferences held in connexion with the promotion of the bill. Dr. Mackintosh, in the absence of Dr. Johnston, the Treasurer, submitted the financial statement, showing a satisfactory balance in hand.

Professor Glaister, in moving the adoption of the report, said that Mr. Munro-Ferguson had again consented to present the bill. The motion was seconded by Miss Gill, Matron of the Edinburgh Infirmary, and carried unanimously. On the motion of the President of the Royal College of Surgeons of Edinburgh (Dr. George Berry), seconded by Miss Wise, a resolution approving the action taken during the year was unanimously adopted. The President of the Royal College of Physicians of Edinburgh (Dr. Byrom Bramwell) moved and Miss Maccallum seconded the re-election of the President and other officers and the appointment of a small committee to watch the progress of the bill in Parliament. This motion was carried, as were also votes of thanks to the managers of the Royal Infirmary and Lord Inverclyde, moved by Dr. Renton, of Glasgow, and Dr. Affleck.

### Scottish Defence Union.

The council of the Medical and Dental Defence Union of Scotland has issued a circular dated February 28th, dealing with the three following matters: (1) The council has completed negotiations with one of the leading insurance companies whereby members of the Union will be enabled to effect insurances on special terms, which are stated to be considerably lower than those offered to the general public. (2) The council has issued a pamphlet entitled *Instructions to Members in Regard to Income Tax Returns* containing various particulars which ought to prove helpful to practitioners in adjusting income-tax returns; it contains a special chapter on deductions allowed. (3) In view of the numerous prosecutions under the Sale of Food and Drugs Act against chemists and medical men supplying or selling to the public drugs alleged to be deficient in quality, the council has decided to recommend members who keep open dispensaries to obtain a warranty from wholesale dealers with each invoice for goods. To enable this scheme to be carried out satisfactorily in practice, without the necessity of requiring members to negotiate with wholesale dealers on individual account, the council has made arrangements with a leading firm of wholesale druggists whereby to each invoice a warranty will be attached that the drugs conform to the standards of the *British Pharmacopœia*.

## Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

### St. Patrick's Nurses' Home.

At the annual meeting of the supporters of St. Patrick's Nurses' Home, Dublin, for supplying trained nurses to the sick poor, a satisfactory record of work done during the past year was presented. Lady Aberdeen, who proposed one of the customary resolutions, referred to the fact that over 27,000 tenement dwellings of one room existed in Dublin, and stated that the existence of such a vast number of poor people as was indicated by this figure demonstrated the importance of the work carried on by the institution. She further threw out an interesting suggestion derived from the working of a similar institution in Canada, where, at the request of one of the large insurance companies, the nurses visit the clients of that company, and the latter subscribes a sum of money to the order. She suggested that possibly some of the local insurance companies would find it to their advantage to subscribe on similar terms to the St. Patrick's Home.

### Inspectors of Lunatics.

At a recent meeting of the Committee of Cork District Lunatic Asylum the rumoured impending retirement of one of the inspectors of lunatics was referred to, and a resolution was passed to the effect that inasmuch as the lunatic asylums are in the main homes for chronic inmates, and inasmuch as their upkeep is costly, and requires the careful superintendence of a person trained in business methods, the committee are of opinion that one of the inspectors of lunatics should be an expert in mental diseases, and the other should be a layman. The committee therefore request the Lord Lieutenant to appoint to the post of second inspector now to become vacant a layman of business ability and of strong grasp of finance. Such an appointment would, however, we believe, require fresh legislation as the Act prescribes that the inspector must be a medical man.

### Epidemic Disease in Dublin.

Sir Charles Cameron reports that the epidemics of scarlatina, diphtheria, and typhoid fever in Dublin are now steadily declining, more especially that of scarlatina. He attributes the decline of scarlatina to the closing of the primary schools, and believes that the epidemic will be at an end if they remain closed for another week.

## India.

[*FROM OUR SPECIAL CORRESPONDENT.*]

### New Rules regarding Fees for Medical Officers in India.

Reference has frequently been made to the very unpopular and degrading rules limiting to an injurious degree the fees which can be received from Indian princes and gentlemen without first obtaining permission from the local governments. It has been known for some time past that they were under consideration with a view to amendment in the direction desired by medical officers. New rules which are a great improvement on those which they replace have just been issued. They are applicable uniformly to British India and Native States. Medical officers are to be free to make with their patients arrangements which will not require to be reported to the local government for sanction, provided that, in addition to travelling expenses, a higher fee is not charged than Rs.500 a day for the first three days and Rs.250 a day thereafter, the full daily fee being given for every complete period of absence of twenty-four hours, with a proportionate fee for periods of less than twenty-four hours. A second rule lays down that when at head quarters a medical officer may charge his usual fees, and in the case of operations, etc., fees equal to those current in the United Kingdom. A third rule provides that in case a fee larger than those mentioned in Rules 1 and 2 be asked for the medical officer will report the case confidentially to the administrative medical officer, who will obtain the orders of the local government without disclosing any of the medical particulars of the case. The local governments are to have full power to dispose of all such cases, or to consult the Director-General of the Indian Medical Service or the Government of India if they so desire.

Although the scale of fees is still considerably below the amounts received by consultants in the great English centres visiting a patient at a distance from the town in which they reside, and also less than the fees paid by the local governments themselves to the leaders of the legal profession, nevertheless they may be accepted as just and as removing all serious ground for discontent. It now behoves all members of the Indian Medical Service to see to it that the new rules are most strictly complied with so as to give no grounds for any retrograde measures in the future. Surgeon-General Lukis has earned the thanks of the members of the service for his successful vindication of their honour. Should he prove equally successful in obtaining the annulment of the order of the late Secretary of State for India restricting the present and future scope of the Indian Medical Service, as is confidently expected will be the case in view of

the well-known views of the local Governments on that dispatch, much will have to be done to restore the rapidly-waning popularity and to revive the prestige of the Indian Medical Service.

# Special Correspondence.

## BUDAPEST.

*Annual Congress of the Hungarian Medical Association.*

ON Sunday, January 29th, the Hungarian Medical Association met in the old Parliament House to hold its annual congress. The opening address was delivered by the President of the Association (Professor Kétly), who gave a short account of the disputes which have arisen between the association and the sick clubs. Ever since January 1st, 1908, when the Workmen's Compensation Act first came into force, the number of men belonging to these clubs has been three times greater than before, and it was naturally expected that in consequence the number of doctors would be doubled. As a matter of fact, however, the increase in the latter only amounted to some 50 per cent. The association has always insisted upon the "free choice" system, but the sick clubs have decided that such a system is impracticable, at any rate at present. Some six months ago the governing board of the sick clubs issued a new set of rules relating to discipline, service, and salaries, which were extremely derogatory to the medical profession. For instance, under these new rules the present system of contracts between the clubs and their doctors (by means of which the latter can attend their patients as long as they like) is to be changed. The clubs, in the case of negligence or any other fault on the part of the doctor, will have the power to break the contract by giving him three months' notice, after laying the matter before a board composed of equal numbers of members and non-members. On the other hand, the clubs wish to discard such a system entirely, and propose that the doctors should be ranked as members over whom they should possess certain disciplinary rights. In concluding his address, Professor Kétly spoke most strongly against such a system, and called upon the profession to oppose it by all means in their power.

Dr. Nándor Flesch, the Secretary of the association, who spoke after the President, called the attention of his audience to the regrettable fact that the new law relating to village and parish doctors has as yet only served to throw fresh work and responsibility upon the doctors, whilst the rights it professes to confer on them are non-existent, owing to the carelessness and indifference of the authorities. Consequently hundreds of posts are now vacant, a fact which can easily be understood, considering the circumstances. The speaker suggested that a proposal should be made to the Secretary of State for Public Hygiene to the effect that the association is willing to undertake to supply doctors for the vacant Government posts in villages and parishes, and through them to do all that is possible to improve the hygienic condition of the country, on condition that the Government will ensure their full rights to these doctors, not only with regard to the nature of their service, their position amongst other State officials, and their salaries, but also in respect of the proposed system of pensions, which has hung fire for so long. The pensions ought to be provided partly by the State (that is, the respective villages and parishes, which should be especially taxed) and partly by the doctors themselves. In reply to this proposal, Gynla Böles, the Ministerial Secretary, said he was authorized to state that the Minister took a very great interest in the medical profession, for whose members he entertained the most friendly feelings; and that preparations for a complete system of pensions were already far enough advanced to make it possible to promise that it should be brought into force by July 1st, 1911. Referring to the complaints of the club doctors, the Ministerial Secretary added that he was convinced that they would be able to keep to the present contract system, and that he himself would do all in his power to prevent them becoming employees of the clubs. He considered the claim for higher fees on the part of the club doctors fully justified, and intimated his intention of introducing a "seven days' system" to cover the additional expense. This means that the clubs, instead of receiving a fixed fee for six days' attendance on the part of the doctor, would be paid for seven days' medical treatment, their income thus being augmented by one-seventh. This announcement on the part of the Ministerial Secretary was received with great applause. The proceedings terminated with a banquet given by the city of Budapest to the members of the association.

# Correspondence.

## THE MODERN TREATMENT OF BONE INJURIES.

SIR,—Much is learnt by personal experience, and a recent fracture in my own case has made me think seriously as to the general treatment of bone injuries, particularly with regard to after-treatment, which is where most of the failures in general surgical treatment take place, and it is at this point that the bonesetter comes in, because the proper treatment has either not been given at all or has been discontinued too soon. The essential of the radiograph for a proper knowledge of the conditions of the fractured bones is far more appreciated now than formerly, but is still too often neglected. The immediate treatment, and the operative treatment when necessary, are, as a rule, well carried out, and the undesirability of continuing the use of splints too long is appreciated, as is also the value of early and proper massage.

What is probably not sufficiently recognized is the amount of damage and laceration of muscles that may occur in any given fracture. This can perhaps only be properly recognized when a fracture is operated on.

The desirability of this knowledge is obvious when one thinks of the amount of repair that has to take place and of the treatment necessary to obtain this with the least loss of power and with the least amount of pain. This is best obtained by daily massage, commencing usually after the eighth day, and in addition excellent help is obtained by what Dr. Eliot Creasy calls the "lamp treatment" combined with the wave current. From these I have had the greatest relief and help. I have seen it also in others. The following is a description from Dr. Creasy of this form of treatment:

> The 500 candle power incandescent lamp is peculiar in the character of the reflection; instead of a parabolic reflector with one focal point, there is a corrugated reflector and conical side reflectors which project lines in parallel and crossing lines of radiation having two parallel fields of greatest brilliancy and intensity. This arrangement permits the operator to move the lamp about in such a manner that these two fairly large fields of intense radiation can be tolerated as they cannot be when detained in one position directly over the regions of tenderness or inflammatory involvement. At the same time the whole surface receives a liberal radiation of light and heat. The effects upon simple inflammation, unaccompanied by infection, is to induce general tissue relaxation with relief of pressure and pain; by increasing local metabolism and elimination to relieve the tissues of the irritating products of defective metabolism present in conditions associated with myalgias and similar conditions; and in conditions of mild traumatic injury, treated promptly after injury, to remove early stasis.
>
> The electric wave current may be classed as an agent which is capable of increasing the physiological resisting power of the part to which it is applied. It restores the metabolic equilibrium which is disturbed in all conditions characterized by increased venous and decreased arterial pressure. Passive congestions are removed by improving the physiological "tone" of the affected region. Pain is relieved because nutrition is rectified and toxic material turned into the proper excretory channels. Health has been defined as a condition characterized by perfect equilibrium of arterial and venous blood pressure. Disturbance of this equilibrium results in locally increased arterial pressure or locally augmented venous pressure, both conditions resulting in disturbed nutrition of the nerves, whose cry for proper nutriment is called pain. The wave current, in restoring the physiological tone of the affected area, tends to re-establish the normal equipoise of the two forms of pressure, and in this way counteracts stasis and relieves pain.

The immediate effect of this treatment with regard to the alleviation of pain is interesting. I have seen a patient who, after a fractured clavicle, suffered intense pain, so much so that he was scarcely able to move his arm at all, and was quite unable to sleep. After about five minutes of the wave current, which had been preceded by treating the affected area with the lamp, the patient was

able to extend the arm shoulder high without any pain at all. A certain amount of stiffness returned after some hours, but a distinct improvement remained, which is still further increased after each application. When the worst of the pain has disappeared by this method, exercises should be combined with it.

The exercises which cause the greatest and best effect without any risk of being overdone or causing harm are carried out by a system of pulleys, which are so delicately adjusted that the amount of force with or against the operator can be regulated to half an ounce. This, as Mr. Frank Romer explains, is far superior to any form of elastic apparatus, which, owing to its elasticity may, say with the extension of a foot, give a resistance of 6 pounds; at the distance of another foot the resistance may be five or six times this amount, and a source of risk to a weak arm if it cannot resist the tension. Also the patient cannot do as much or as well, because there is a lack of confidence when the elastic apparatus is used. On the other hand, the patient works away with the finely adjusted cord pulleys with every confidence, as he knows that no harm can possibly happen to him.

It is of the greatest interest to see a certain exercise started which, owing to weakness and stiffness, it seems almost impossible for the patient to attempt. It is started with a very slight amount of resistance, and after two or three movements the patient continues the movement alone and repeats it thirty or forty times with increasing power and confidence. After two days an exercise so laboriously begun can be carried out with ease.

These pulley exercises combined with the lamp and wave current treatment mentioned above, if taken at the proper moment, will in a week convert a painful crippled limb into a useful working limb. This I can speak of from experience, and the rapid progress which can be made will be appreciated when I say that when this treatment was started I was unable to raise my arm, to hold a spoon or fork, and that at the end of a week I could feed, dress, and shave myself, and also write, and at the end of ten days I was able to resume my work.

This treatment may be said to be ideal and not within everybody's reach, but it is the ideal one aims at, and, if this cannot be obtained generally as yet, then the best must be done under the circumstances. A proper knowledge of the after-treatment of fractures and a general knowledge of the principles of massage will, if carried out, produce better results than can ever be obtained by any unqualified bonesetter.—I am, etc.,

FRED. C. WALLIS, F.R.C.S.,
Surgeon to Charing Cross Hospital

London, W.C., Feb. 28th.

## SWABS LEFT IN THE INTESTINE.

SIR,—I cannot understand why Mr. Lynn Thomas should consider that the sigmoidoscope is a dangerous instrument. That there is undoubtedly danger when it is used by any one who has not had considerable practice in passing the instrument, or by any one who is inexpert or rough, is, of course, obvious; and I have myself heard of accidents due to its use, but only where it was used by some one who had no, or very little, previous experience in passing it, and so far as I have been able to ascertain by careful inquiry in all of these cases the instrument was used in an entirely improper manner—namely, it was passed by feel with the obdurator in place, and not, as it should be, entirely by sight. When used correctly and passed only by sight, slight puffs of the bellows being used to separate the walls of the bowel, and not the end of the instrument itself, it is, I believe, quite impossible to cause any damage with this instrument, even in cases where the bowel wall is seriously diseased. I have myself been using this instrument for about eight years, and have not only never seen any serious consequences, but have never even met with a case in which there was the slightest discomfort after the examination. I have several times used the instrument to examine an anastomosis in the pelvic colon soon after the operation has been performed and I cannot conceive how, if properly used, the instrument can possibly cause any harm, nor have I ever known it do so.

On the other hand, it is extremely useful to be able to see the condition of the anastomosis; to see whether the stitches in the mucous membrane have separated; and to see whether the lumen left after the anastomosis is sufficiently wide.

I have also repeatedly used it to examine cases of severe ulcerative colitis, and, although I should by no means advocate its use in such cases unless the surgeon has had considerable practice in using the instrument, there is not the smallest risk in the hands of experts.

At St. Mark's Hospital the instrument has been used continuously now for a number of years, and there has never been anything approaching an accident with it.

In other words, any danger attending the use of the sigmoidoscope is, in my opinion, entirely due to its being used in difficult cases by surgeons who have not had much experience in its use. Mr. Lynn Thomas has evidently had considerable experience with the instrument, and I understand from his letter that he has never had an accident with it. I cannot, therefore, understand why he should describe it as a dangerous instrument, except, as is obviously the case, in the hands of inexperienced persons.—I am, etc.,

P. LOCKHART MUMMERY.

London, W., Feb. 27th.

## RHEUMATIC PURPURA AND PELIOSIS RHEUMATICA.

SIR,—I have been much interested in the letters on this subject by Drs. Poynton and R. J. Miller. Dr. Miller appears to consider that it is probably only a coincidence when Schönlein's peliosis occurs in connexion with an attack of rheumatism; Dr. Poynton looks upon the condition as a manifestation of rheumatism in many cases, but sometimes as an indication of a special infection. Some years ago I read a paper before the Bradford Medico-Chirurgical Society on this subject, enumerating some cases and showing several illustrations. One case was that of a young man, 22 years of age, who had contracted rheumatism after getting extremely wet. He had acute pains in the arms and legs, the ankles and knee-joints being especially affected. He had been in this condition over a week when the typical patches began to appear on his legs, on which they became pretty equally distributed. Each day some fresh maculae appeared, gradually involving the thighs and abdomen, and afterwards a few came out on the chest and back of the hands. As successive crops came out maculae in all stages of coloration were to be seen. He was treated with salicylates and alkalis, and in the later stages with iron and arsenic, and quite recovered. Another case was a lady, 27 years of age, in apparently excellent health, with no rheumatic history, who was alarmed by noticing one morning a crop of red spots come out on the dorsum of both her feet and the fronts of her legs. Within a day or two she began to suffer from acute articular pain in the toe-joints, ankles, and knees, with oedema, which was especially marked over the dorsum of the feet. Large irregular purple patches formed from the coalescence of the smaller spots, and in some cases bullae containing a yellow serum formed. She was also treated with salicylates and by rest in bed, and afterwards with arsenic. In four to five weeks the blotches gradually disappeared. In both these cases the temperature was never high—in the young man only 100° F., and in the lady 101° F.

The impression I gained from a consideration of these cases was that in the first case quoted the infection was a rheumatic one, and the purpura an incident; the second case appeared as if it was due to some specific infection, and the arthritic pains its sequelae. These inferences appear to bear out Dr. Poynton's conclusions.—I am, etc.,

JAMES METCALFE.

Bradford, Feb. 19th.

## CONTINUOUS ANTISEPTIC INHALATION IN PULMONARY TUBERCULOSIS.

SIR,—I think the profession is greatly indebted to Dr. Lees for his persistence in calling attention to the value of continuous antiseptic inhalations in the treatment of pulmonary tuberculosis.

I do not feel that I have tried his methods for a period sufficiently long to form a decided opinion, yet I have come to certain conclusions, though they are not precisely those arrived at by Dr. Lees. After twenty-five years' experience as a physician to consumption and chest hospitals, I believe that a common cause of the febrile

disturbance and of the activity of the tuberculous process is the presence of mixed infections. The toxins of tuberculosis are themselves liable to produce both a wide oscillation of the daily temperature and fever, especially when the auto-inoculation is exaggerated by movement or excessive muscular exertion. But in a considerable number of cases there is little doubt that the disease is accelerated and the symptoms enhanced by the presence of some coincident organisms. And this is especially the case in city life.

Thus the acute and stormy pneumonic onset, and often the intercurrent pneumonia of tuberculous cases, is frequently due to the presence of the *Diplococcus pneumoniae*, while the associated asthma that is occasionally present in extremely chronic cases of tuberculosis may be due to the same cause or to the presence of some other catarrhal organism. Also many of the febrile phases of a case of chronic pulmonary tuberculosis are complicated by the presence of the *Micrococcus catarrhalis* or other catarrhal microbes of similar nature.

The cases of acute necrosis and suppuration of lungs are usually accompanied by one or more of the various pyogenic organisms—streptococci and staphylococci.

I have often endeavoured, with the assistance of our clinical pathologist at Brompton Hospital (Dr. Inman), to obtain an isolation of these extraneous organisms, and to have a vaccine prepared and injected, with the hope of eliminating this mixed infection. At the same time this is a most difficult and elaborate process, and can only be done in a few selected cases. I am struck by what Dr. Lees affirms with regard to the influence that continuous antiseptic inhalations have upon the common cold, due to one or other of the "so-called" *infective catarrhal organisms*.

So far I have formed the opinion, in the few cases in which I have tried this method (and which I hope still further to verify), that this plan of treatment is of importance in dealing with these mixed infections of tuberculous cases.

It is a common experience at our Frimley Sanatorium that, after two or three weeks' "open-air" treatment, the sputum becomes free from all other organisms except the tubercle bacillus, and that this is accompanied by a corresponding subsidence of excessive oscillation of temperature.

My present strong feeling is that continuous inhalation, such as Dr. Lees advises, is of great value in eliminating all these mixed infections. In many of Dr. Lees's cases the patient has been placed under recent favourable conditions as to rest, good food, and other hygienic influences, at the time the inhalations were commenced.

I have come to the conclusion that this treatment aids in the elimination of extraneous organisms that invade the respiratory passages and that increase the activity of the tuberculous disease. I have not yet been able to satisfy myself that the tuberculous process itself is affected except in this indirect manner.—I am, etc.,

London, W., Feb. 20th. S. H. HABERSHON.

## TUBERCULIN AND TUBERCULIN DISPENSARIES.

SIR,—Seeing that my report to the Town Council of Portsmouth on the provision of tuberculin dispensaries has received some criticism in your columns, I should be glad if you would allow me space for a reply. I should not have troubled you with this were it not for the curious misconceptions as to tuberculin dispensaries which seem to have occupied the minds of your correspondents.

Dr. Pringle, medical officer of health, Ipswich, sent a circular letter to the "medical superintendents of the principal sanatoriums of England and Wales" stating that I had in a report recently published at Portsmouth advocated the "establishment of tuberculin dispensaries in place of sanatoriums or other provision for the treatment of phthisis," and he asks for their opinion on the matter. On the receipt of their replies he pens his article against tuberculin dispensaries, and against, what he erroneously attributes to me, namely, the "indiscriminate administration of tuberculin."

The fact that Dr. Pringle does not give the names of the gentlemen whose opinions he summarizes rather detracts from the value to be attached to his statements. This, however, is of small importance compared to the fact that he does not state in his article whether he merely asked the superintendents their opinion generally on the use of tuberculin at a dispensary or whether he asked their opinion on the particular method of administration—namely, that employed by Dr. W. Camac Wilkinson—which I advocate. If, as I believe, thereplies of the superintendents were based on their experience of Koch's Old and New Tuberculin, and not on the system employed by Dr. Wilkinson, of gradually increasing the active immunizing power of the body by a course of some of the less toxic tuberculins, then the replies he has received are absolutely valueless as a criticism. Dr. Wilkinson has repeatedly stated that if he were dependent only on Old and New Tuberculin he would never advocate tuberculin dispensaries. The attempt to secure immunization by means of the indiscriminate administration of Old and New Tuberculin at a dispensary would probably result in a recurrence of the disasters that attended the indiscriminate use of tuberculin soon after its introduction by Koch in 1891 and 1892. I may say, indeed, I have never seen a dose of New Tuberculin given at Dr. Wilkinson's dispensary, and it is only toward the end of the course of treatment that the patient is given Old Tuberculin.

The latter part of Dr. Pringle's article is devoted to showing, theoretically and logically, that tuberculin dispensaries are useless and dangerous. To answer his arguments would be waste of time. The question will be settled, and is now in course of being settled, not by argument, but by practice. Tuberculin dispensaries, in which the treatment is administered on the lines advocated by Dr. Wilkinson, have been for some eight or nine months carried on at Kennington Road, S.E., at Street (Somerset), and at Aldershot. Numbers of patients have already been treated at these places. Not only has there been not one single untoward result, but I believe I am correct in saying that every patient, without exception, has benefited by the treatment. Many cases are apparently quite cured, and in many others the improvement is remarkable. Moreover, the cases have not been limited to those in the first stage of the disease. I have seen patients in the later stages who had already had a course of sanatorium treatment without benefit commence rapidly to improve under a course of treatment at the dispensary.

I would like here to correct a misconception. I have been accused of being hostile to sanatoriums. Such is not the case. I am far from wishing to deny the value of these institutions; the opinion I hold is simply that, owing to their expense, they can never be relied upon to solve the consumption problem, and at the present time I do not suppose they are capable of dealing with 10 per cent. of the consumptives in this country who need treatment. There is no doubt that sanatoriums have effected a number of cures amongst persons who without them would not now be alive. It is also found that in Germany the usefulness of sanatoriums is greatly increased by the adoption of the tuberculin treatment, and in the three years 1905–7 the numbers of private and public sanatoriums systematically employing tuberculin increased from 29 to 57 per cent. (Bandelier and Roepke). I do not advocate tuberculin dispensaries to the exclusion of sanatoriums; there is plenty of work for both, and the best results will undoubtedly be obtained by a system that incorporates the employment of both.

I had been given to understand that Dr. R. W. Philip of Edinburgh was opposed to the provision of tuberculin dispensaries, but, after carefully reading his letter in the JOURNAL of February 25th, I am unable to ascertain whether he is still of that opinion or not. One thing, however, is clear, and that is that, in his opinion, a tuberculin dispensary is simply a place—a station, he says, it ought to be called—which is used merely to give a person a dose of tuberculin. I have never before heard of so limited a conception of such institutions. I do not know upon what it is based; it cannot be upon experience of the Kennington Road dispensary, where a nurse is attached who visits the patients, and also lady visitors who advise and help needy cases with nourishing food and in other ways. Nor can it be based upon Dr. Hilda Clark's tuberculin dispensary at Street, where, in addition to the above, open-air shelters are provided, and beds are also maintained at a sanatorium where the tuberculin treatment is continued. Nor will such a definition apply

to the tuberculin dispensary which, on my advice, the Portsmouth Town Council are going to provide, for here there will be health visitors to visit and instruct the patients and their families, a committee of ladies will assist in following up and helping the patients in their homes, and I hope also that beds will be at our disposal for the use of certain patients who may need continued medical observation and attention. In fact, an endeavour will be made to employ all those useful agencies which are found of value in tuberculosis dispensaries, with this important addition, that here will be given a specific curative agency which other tuberculosis dispensaries in this country have so far not made use of.

Dr. C. E. S. Flemming states (JOURNAL, February 25th) that the only evidence he can find in my report of the value of tuberculin dispensaries is that taken from Dr. Wilkinson and his book. I fear he can have read my report but carelessly, or he would have seen that I also quote the results obtained at Aldershot and Street. It is true that I have not quoted any other results, but these are the only places that I am aware of where the treatment of out-patients by tuberculin is carried on in this country; further evidence, therefore, is impossible unless one goes to Germany where it is also practised. I have, however, preferred to quote only such evidence as is available in this country, so that it is in the power of any one to see for himself and judge for himself whether or not I have attached too much value to the facts that are open for the investigation of any medical man.

In conclusion I suggest that the academic discussion of the value of tuberculin dispensaries is rather a waste of time. I have no wish that medical men should take my opinion upon them—at the same time they will be foolish to take the opinion of those who, having had no experience of such institutions, yet feel qualified to condemn them. The solution of the matter is very simple: the dispensaries I have mentioned are being carried on openly, and I believe I am warranted in saying that those in charge of them will offer medical men interested every opportunity of seeing for themselves the methods of treatment and the results that are thereby secured. Let medical men, therefore, visit the dispensaries and form their opinions from actual experience. I have little hesitation in saying that if they do so they will agree with the opinion I have expressed in my report, and that is, that the evidence available is amply sufficient to warrant a thorough and extensive trial being given to tuberculin dispensaries in this country.—I am, etc.,

Town Hall, Portsmouth, Feb. 25th. A. MEARNS FRASER.

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SIR,—The close proximity of Dr. Wilkinson's and Dr. Lees's letters in your issue of February 18th, pp. 403, 404, should surely make the thoughtful pause and consider. In both letters a claim is put forward that a cure for pulmonary tuberculosis has been found at last. At first sight it would seem that their methods of cure have nothing in common, and yet, I venture to think they are nearly related, a great deal more so than their authors really imagine.

A great deal is said about continuous antiseptic inhalation, and very little about the mechanical effects of wearing a respirator continuously. If no antiseptic be used, a respirator may do good in the following directions: (1) It will keep the patient from talking and laughing; (2) in certain cases it will mitigate the cough; indeed, if wearing a respirator will stop cough, it has done one of the most necessary things towards promoting a cure of early tuberculosis of the lungs. The cough is stopped, chiefly I imagine by the air being warm and moist after passing through the respirator. It is especially useful during the prevalence of dry east winds. The respirator method of treatment is simply a method of producing rest. From my own experience I should say that the last thing which an early case of pulmonary tuberculosis is made to do, is to go to bed; for one thing no doubt these patients generally object to this form of treatment. It thus happens that patients with night sweats are encouraged to walk about, and are thus made into chronic cases. A week or a fortnight of strict seclusion in bed, will often do wonders in the early stage of pulmonary tuberculosis. I do not believe that the antiseptic has any effect on the tubercle bacillus.

Now in those cases in which rest cures, it is probable that the tubercle bacillus brings about its own destruction. Owing to the vascularity of the lung there is reason to suppose that tuberculosis of that organ is more often cured without treatment than tuberculosis affecting any other organ. If, however, the cure does not take place, the increase of tubercle, situated in so vascular an organ, will speedily, by autoinoculation, produce a bankruptcy of the body with regard to antibodies; it is at this stage that tuberculosis of the lungs first shows symptoms. Rest is the only measure known for stopping the increase of bacilli; even with rest in bed there will, however, usually be sufficient movement to bring about sufficient autoinoculation to promote a cure.

Whether it is correct or not to give tuberculin at dispensaries, or whether such a course is beneficial, I can give no opinion. From theoretical considerations it would appear not to be a wise proceeding; and any one who has watched the effect of tuberculin on visible surgical lesions might well pause before giving it indiscriminately when so vascular an organ as the lung is affected. The cross-sectional area of the vessels in that organ is so great that it is much if a tubercle will not ulcerate into one of them, and so produce considerable spread of the disease, or even a generalized tuberculosis. That tuberculin is sometimes valuable in treating tuberculosis of the lung, no one who has used it will deny. That it is particularly useful in the majority of cases which come to this sanatorium I do not admit. Sanatorium physicians have for some years been trying this remedy in the hope that it would improve their results. Had it done so to any appreciable extent, I think it is clear that sanatoriums would not have been subjected to the harsh criticisms which have been poured upon them of late.

Whatever is true as to the correct method of treatment, it seems to me quite clear that when a medical man suspects a patient of suffering from tuberculosis of the lung, the first thing to do is to place him in bed; if he coughs a great deal, and talks too much, it may be advisable to give him a respirator. Whether or not tuberculin should be given may be considered later.—I am, etc.,

EDWARD E. PREST.

Ayrshire Sanatorium, New Cumnock, N.B., Feb. 18th.

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SIR,—Your correspondent, Dr. R. W. Philip of Edinburgh, no doubt refers to me as "one of your correspondents" and "an extra-sanguine advocate of tuberculin," though he does not mention my name. In discussing the limitations of tuberculin as a remedy he seems to forget that these limitations were considered and determined long before he himself "pointed them out." Dr. Philip has been and still is, from my point of view, a timid advocate of tuberculin. I have furnished incontestable evidence that tuberculin in large doses is a safe remedy, and often the only remedy, even in late stages of pulmonary tuberculosis. Dr. Philip stated at the meeting of the British Medical Association in London that it was useful in a limited number of early cases, and that he could not make up his mind which was the better method for early cases—the method of sanatorium treatment or the method of tuberculin treatment.

I am not aware that I did more than say how many times a mixed infection occurred in a small series of cases, yet Dr. Philip tells us that "mixed infection" is of more frequent occurrence than the statement of "one of your correspondents would indicate." I have given much time to the study of mixed infection, and the frequency of mixed infections varies, *inter alia*, with the prevalence or otherwise of epidemics—notably of influenza. When, in 1897, I was preaching the definite doctrine of mixed infections, no Englishman or Scotsman had ventured upon any clear statement of the meaning and importance of mixed infections in pulmonary tuberculosis.

By scientific methods it is easy to determine the range of mixed infections, and this being done one is competent and ready to use tuberculin both in diagnosis and treatment. Tuberculin may be used in all cases of pulmonary tuberculosis free from mixed infections, but the degree of improvement and recovery is in inverse ratio to the stage of the disease. Hence the enormous value of early diagnosis; and while I am entirely with Professor Koch in using tuberculin in a routine fashion as the best means of

establishing the diagnosis at the earliest period, Dr. Philip is not. He is still afraid of it. Therein lies the pre-eminent advantage of the tuberculin dispensary, and herein lies the reason of Dr. Philip's opposition to it.

Again and again I have stated that the work of the tuberculin dispensary begins with the use of tuberculin both for diagnosis and treatment, but it does not end there. Any one who takes the trouble to read the appendix in my book will see that the outlook of the tuberculin dispensary is just as wide as the outlook of Dr. Philip's scheme; and I have not borrowed a comma from Dr. Philip's writings, though Dr. Philip may have borrowed something from me, and we have both borrowed freely from others.

Lastly, I cannot refrain from restoring to its proper place and form the blurred picture of the tuberculin dispensary presented to your readers by Dr. Philip. The tuberculin dispensary has come to stay, and its name is both apt and definite. My institution can be called nothing else than a dispensary, as it resembles all other dispensaries in being a place where disease is treated. On the other hand, according to the very analogy which Dr. Philip has cited, his institution is an antituberculosis station. There is no resemblance between a tuberculin dispensary and a vaccination station, which is a place where healthy people are vaccinated.

The essential function of the vaccination station, as of the antituberculosis dispensary, is prevention. Dr. Philip gives his own case away when he styles his letter "Tuberculin and the *Prevention* of Tuberculosis." I know of no other dispensary that aims essentially at the prevention of disease. It is therefore Dr. Philip who has applied the label "dispensary" to an institution which is unlike all other dispensaries. On the other hand, the tuberculin dispensary is the only dispensary where tuberculin is dispensed as the agent for recognizing tuberculosis, and also, month after month for many months, as the essential remedy in the treatment of tuberculosis. The tuberculin dispensary will outlive the antituberculosis station, wrongly labelled "dispensary," and will prove itself the simplest, most economical, and most valuable means of dealing with tuberculosis, especially pulmonary tuberculosis among the poor.

The Tuberculin Dispensary League has not been a year in existence, and yet there are already five active centres, and others are contemplated at Portsmouth, Aberdeen, Leith, Poplar, Banbury, and Oxford. "*Vires acquirit eundo*."—I am, etc.,

W. Camac Wilkinson, M.D., F.R.C.P.

London, N.W., Feb. 25th.

## THE AVERAGE MEDICAL INCOME.

Sir,—The temperance with which Dr. Bunting protests against my "dangerous inaccuracy" and "annoying intemperance" is very refreshing to me, and I promise to do my best to amend my ways in future. This I do with all the more grace because Dr. Bunting is at one with me in the desire for a State medical service, and one can suffer criticism better from a friend than from an enemy. It is wonderful how many strong adherents are arising for a State medical service, and they will increase by many thousands when through our negligence the whole medical service of the country, practically, has been put under the control of the friendly societies by the new State insurance proposals.

Dr. Bunting quite correctly states that he asked me seven months ago for the basis of my statement that the average medical income was well within £200 per annum. At the time I wrote a reply, in which I stated that the figure was none of my invention, but one which was frequently quoted, and I believe I am correct in stating that it occurred in an Educational Number of the British Medical Journal a few years ago. Two or three months later, in an article in the Journal, intended to demonstrate the great cost when capitalized of buying out the medical profession in order to establish a State service (a quite unnecessary proceeding, by the way), the total annual income of the profession was set down at eight millions, which sum divided by thirty-two thousand, the total number of medical men, gives £250 as the average annual income. There is no reference to my statement in this article, and it would appear to be an independent opinion. So that, if I have been guilty of any intemperance in endeavouring to find a basis for necessary calculations, others have sinned with me. Those who know me will believe that I have no desire to belittle the medical profession, to which I belong, or to understate the incomes of its members. I want to serve both community and doctors in this matter, and I have a burning desire to get at the truth and state it.

The value of the average medical income is an important factor, which ought to be ascertained as accurately as possible, and it could be got at quite closely if practitioners would lend their assistance. Let us do this, instead of arguing as to what it is. Here is one method by which the problem can be approached, remembering that we are not dealing with what incomes ought to be, but solely with what they actually are at the present moment. A very large amount of work is done at present through contracts with clubs, etc., and a very common rate of payment is 4s. per annum for each member. I do hope this is not an intemperate statement. The club doctor often gets the wife and family to attend to also, and it is surely a liberal allowance to say that he or some other doctor gets as much for the wife and for each child as for the father or other club member; so that for a family of about the average number of five, say, the doctor would get £1 sterling annually. Such a rate of payment would, I know for a fact, be admitted by many doctors in working-class practices to be quite as much as they actually get nowadays, if it is not over it. For example, a doctor who had 500 families in his care would have £500 a year, and one who looked after 1,500 families, as many do, would have £1,500 annually, these being gross incomes. Supposing this to be a fair statement, let us see at what figure the average income works out. Our basis is 4s. annually per individual; the estimated census of population is 44,000,000, so that we must divide by five to get the gross annual income in pounds of the profession. This yields £8,800,000 for the total gross income, and, as this has to be divided amongst 32,000 men, the average income comes out at £275 per annum. This is gross income, and there remains to be deducted an average amount to cover costs of drugs and that portion of residence which is used for professional purposes; an annual amount of £35 would not seem to me to be an intemperate sum to deduct, and this would leave a net average income of £240. If, instead of taking a basis of 4s. a head—man, woman, and child—a basis of 5s. is taken, the net average income becomes £310.

There are of course the "upper ten thousand" who pay large fees, but these are at least counterbalanced by the hundreds of thousands of casuals who are treated free in hospitals or paid for at a rate of less than 4s. a head by the Poor Law authorities. Again, critics might object to the division by 32,000 on account of the number of doctors in full-paid or part-paid public posts; the percentage amount of these is not large, however; and, further, most of them are engaged upon Poor Law or municipal work which is not otherwise paid for, so that if we deducted them from the 32,000 we should have to deduct their huge non-paying *clientèle* of patients from the 44 millions of contributors.

If these varying outlying factors balance one another, therefore, and we take 4s. a year as the *average* amount paid for medical attendance by every inhabitant of the country, we arrive at the conclusion that the average income is £240 a year.

In striving to obtain as accurately as possible an estimate of the annual income, I have not gone upon preconceived notions, but have discussed the matter with dozens of practitioners from all parts of the country. Moreover, I have not only discussed the average income with them, I have gone into methods of medical practice, and especially of club practice, and I know that the things I say in my book are true and might have been put even more forcibly. Therefore, I cannot accept the honour of academic eminence which Dr. Bunting accords to me if that is to be taken as evidence that I have not "actual contact" with general medical practice, for I have studied this subject deeply and actually on the spot in many differing districts. If, however, Dr. Bunting cannot accept my evidence because I am not actually in general practice, there are two other books, written by men actually in practice, which he should not miss reading. One of these is *Dr. Grey*, by Stephen Andrew (Greening);

the other is *The Lion's Whelp*, by Dr. Gilbert Irvine (Simpkin, Marshall). These men, at any rate, write of things they do know.

It is unfair to me to quote one half-sentence from a long reasoned statement in my book, showing how club practice arose, and what are its weaknesses and its strength, and how it can be set upon a fair and equitable basis by a national service and all its viciousness removed, and then to accuse me of intemperance of language. My descriptions are given in strong colouring, I admit, but they are true to nature, and it is necessary to hold up the naked truth and tell it to the people, if one desires to see the remedy applied swiftly.

Again, I am accused of saying on the one hand that a large proportion of the profession is grossly underpaid, and at the same time using the present average income as a basis to estimate the cost of a model State medical service. Now, if Dr. Bunting will turn again to the *Dawn of the Health Age*, page 52, he will see that after stating, as accurately as I knew how, the present income of the profession, I definitely state that the profession is underpaid, taking into account the duration and expense of professional training, and suggest that one-fourth additional should be added. All my calculations are based on this 25 per cent. increase in professional incomes. If Dr. Bunting does not regard it as sufficient I am truly sorry, but it must be remembered there are always two sides to any bargain, and in my opinion we might well be content with a 25-per cent. increase, at any rate as a commencement.

Finally, in my book I have nowhere attacked any person or body of persons. I may, perhaps, for the first time have publicly told unpalatable truths, not only about club doctors, but about consultants, medical professors, hospitals, public health authorities, etc.; but I am never dealing with individuals. I am dealing with the chaos of a system which loses a quarter of a million lives annually by deaths from preventable causes, which is sweating and ruining our profession, and causing untold misery and suffering to our entire community.

The persons involved in this chaos cannot help themselves by individual action, and I am not blaming them; I am trying to incite them, and the public, to take common and united action for betterment. But in the process I am rediscovering that "one cannot make omelettes without breaking eggs."—I am, etc.,

Birkenhead, Feb. 18th. BENJAMIN MOORE.

## QUALIFIED OPTICIANS.

SIR,—Dr. Seymour Taylor, by pointing out the similarity of the case of the midwife and the sight-testing optician, has unconsciously hit the chief point against either.

We are rapidly finding ourselves surrounded by a number of unqualified specialists, who, it seems to me, will gradually reduce the work done by legitimate practitioners.

If each organ is to have besides its consulting specialists attached to a hospital, an unqualified specialist behind the chemists' shop, the sooner the ordinary general practitioner disappears the better for him.

I am doubtful, however, whether such a result will in the end be beneficial to the public.—I am, etc.,

Eye, Suffolk, Feb. 27th. HENRY E. BARNES.

SIR,—May I point out that Dr. Dunn's analogy (p. 406) between the chemist and optician is not sound. The chemist supplies drugs for usually progressive morbid conditions of the human body; the optician supplies lenses for mere fixed aberrations of the eye (just as an instrument maker supplies elastic leggings for varicosed legs); the morbid cases he refers to medical specialists.

It is not correct, then, to assert that "the sight-testing optician, whatever may be said of his qualifications, is exactly on a par with the prescribing chemist." Simple myopia, presbyopia and hypermetropia are not diseases; but crippled conditions needing a crutch of proper measurement, and not medicinal treatment.—I am, etc.,

London, E.C., Feb. 17th. CHAS. HYALL WOOLF,
Editor, *The Optician*.

## THE SWEATING OF DOCTORS BY THE LONDON COUNTY COUNCIL.

SIR,—If "Unitas" desires an answer to the query in the last paragraph in his letter in the JOURNAL of February 11th, he should obtain a copy of the *London County Gazette* for January 9th and carefully examine, with the aid of a *Medical Directory*, the lists of school doctors and assistant school doctors on pp. 14 and 15. As it is generally understood that many of those holding these appointments are willing at present to accept the terms offered for examinations, it is not likely these terms will be increased for the lesser lights outside the school and assistant school doctors; but that the London County Council can pay adequate fees is within my knowledge, as one of the school doctors has received £3 3s. an hour for a course of lectures in one of the evening schools.

Another aspect of the question of the new system of examination is the discontent of the students with the results and methods of the examinations, leading to the conclusion that the old and experienced examiners have refused to accept the terms offered, or have been supplanted by those without sufficient experience, for questions have been asked at the recent examinations outside the official syllabus, and it appears to have escaped the attention of the examiners that the examinees have already done a day's work before sitting for the examination.—I am, etc.,

February 14th. L. L.

## LADY HEALTH VISITORS OR WOMEN SANITARY INSPECTORS?

SIR,—For the second time within a short period I am in receipt of a circular letter from the Royal Sanitary Institute, suggesting that I should advise my authority to accept women with certificates of "lady health visitor" for our appointment of woman sanitary inspector. This urges me to bring forward a question of importance to public health departments—namely, whether the holder of such a certificate is quite the person a medical officer of health could conscientiously recommend for an inspector's appointment?

For reasons I am about to state, it appears to me that the establishment of an examination for a certificate as "lady health visitor and school nurse" was a great mistake on the part of the institute.

The circular states that already 216 women have been granted such certificates, no one of whom was obliged to produce evidence that she had served as a pupil under a medical officer of health, or that she was equipped with a good general education. Thus, the institute has introduced, or has endeavoured to introduce, into the public health service a great number of persons who, having passed an *easier* examination, now compete for appointments against those women who have (in the past) obtained the same institute's certificate of "sanitary inspector" or that of the Sanitary Inspectors' Board. If, as suggested by the circular, my authority accepted such certificates, it must lead to a large competition for every vacancy, and therefore a lowering of the salaries paid, already (in my opinion) inadequate.

Incidentally I might state my view that the title of "lady health visitor" is not a happy one. It leads to her being classed by the people with the vicar's district visitors. Therefore she is not expected to look over the dwelling, but to read the Bible, give a tract and a shilling, or an order for coals, blankets, or groceries, and then take her departure.

The institute and the Royal Sanitary Inspectors' Board will be well advised not to invite women to take exactly the same course and examination as men for qualification as sanitary inspectors, but they should institute quite a separate examination for "women sanitary inspectors," which should be of a standard equal to that of men, but complementary and not identical in its character. For example, women do not require meat inspection, slaughter-houses, or stables as subjects of study, or such a wide range of knowledge in sanitary law, but, on the other hand, they require a sound, though elementary, knowledge of diet and sick and infant nursing.

The action of the Royal Sanitary Institute has placed medical officers of health in an embarrassing position to choose whether they will recommend for election a woman with a man's training, or a woman only half-trained for her important duties.—I am, etc.,

SIDNEY C. LAWRENCE,
Edmonton, Feb. 27th. Medical Officer of Health for Edmonton.

## THE ORIGIN OF THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

SIR,—May I correct an inaccuracy which occurs in the obituary notice of Dr. James Edmunds in the JOURNAL of February 25th? It is stated that the Female Medical Society, founded by Dr. Edmunds, "was merged afterwards in the London School of Medicine for Women, and that he retired from it because his own views were not favourable to carrying the medical education of women to the point of enabling them to become registered medical practitioners."

The London School of Medicine was opened in 1874, and had no connexion with the classes organized by Dr. Edmunds some eight to ten years previously, nor did Dr. Edmunds at any time take part in the foundation or management of the school.

My mother (Mrs. Isabel Thorne), Miss Jex-Blake, and Miss Chaplin attended a few of Dr. Edmunds's classes, but finding the teaching inadequate, went to Edinburgh to try and gain admittance to the university. This, after some five years, proving impossible, they returned to London, and, with the help of Mrs. Garrett Anderson, the late Sir William Broadbent, Dr. Cheadle, Dr. Thomas King Chambers, Professor Huxley, and many others, organized and opened the London School of Medicine for Women.—I am, etc.,

MARY THORNE,
Honorary Secretary, London (Royal Free Hospital) School of Medicine for Women.

London, W., Feb. 26th.

# Universities and Colleges.

## UNIVERSITY OF CAMBRIDGE.

*Conferment of Degrees.*

The following degrees have been conferred:

M.D.—C. H. Gregory, W. V. Naish.
M.B.—L. M. Routh.

*Proposed Establishment of a Diploma in Psychological Medicine.*

The Special Board for Medicine have drawn up a report for communication to the Senate, in which they state their belief that an examination in Psychological Medicine and its cognate subjects could not fail to raise the present standard of efficiency in applicants for asylum posts, and that it would lead to the provision of appropriate courses for the training of those who wished to advance our knowledge of Psychiatry. They believe that the Legislature would quickly come to recognize the diploma as a qualification which must necessarily be held by all medical officers of public institutions for the insane, and is desirable in candidates for medical appointments connected with education, the Poor Law, and the Prisons.

The Board recommend that the examination consist of two parts, the subjects of examination in Part I being: (1) Anatomy and Physiology of the Nervous System, (2) Psychology; Part II, (1) Neurology, Clinical and Pathological; (2) Psychiatry, Lunacy Law, and Asylum Administration. Part I should be open to all who hold a registrable qualification in Medicine, Surgery, and Midwifery.

Before a candidate can present himself for Part II he shall have been a registered medical practitioner for not less than two years and have had one year's clinical experience in an institution for the insane which is recognized by the university

## UNIVERSITY OF SHEFFIELD.

*Appointments.*

THE Council at its last meeting made the following appointments: Dr. Sinclair White, M.D., M.Ch., R.U.I., F.R.C.S., to the Professorship of Surgery in the University, in succession to Mr. R. J. Pye-Smith, resigned; Mr. George Stanfield, B.Eng. (Sheffield), to the post of Demonstrator in Engineering; Mr. Ll. Lloyd, B.Sc.Lond., to the post of Assistant Curator of the Zoological Museum.

## SOCIETY OF APOTHECARIES OF LONDON.

AT the February examinations the following candidates passed in the various subjects indicated:

SURGERY.—W. J. Gibson (Sections I and II), London Hospital.
MEDICINE.—M. J. A. des Ligneris (Sections I and II), Berne; C. B. Hawthorne (Sections I and II), Cambridge and Birmingham; J. B. Holmes (Section I), Manchester; J. C. Johnson (Sections I and II), Middlesex Hospital; H. T. Roberts (Section II), St. Mary's Hospital.
FORENSIC MEDICINE.—M. J. A. des Ligneris, Berne; D. M. Hunt, London Hospital: H Rowntree, Middlesex.
MIDWIFERY.—H. H. Budd, St. Mary's Hospital; C. de C. W. Langdon, Manchester; J. G. Lewis, Durham; T. T. O'Callaghan, Guy's Hospital.

*Diplomas Granted.*

The diploma of the society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:

W. J. Gibson, J. C. Johnson, and M. J. A. des Ligneris.

# The Services.

## UNIVERSITY OF LONDON OFFICERS' TRAINING CORPS.

THE second annual report by the Military Education Committee on the administration and work of the London University Contingent of the Officers' Training Corps was presented to the Senate on February 22nd. This committee was, in accordance with the War Office regulations, entrusted with the general administration of the contingent by the Senate, and was enlarged on December 14th last. The contingent itself has during the past year been increased by the formation of two new units—namely, one section of Field Artillery armed with two 18-pounder field guns, and a Transport and Supply section of the Army Service Corps. A fourth section formed by cadets at Middlesex Hospital, where its head quarters are established, has also been added to the Field Ambulance. The strength of the contingent as at December 31st, 1910, was 953, an increase of 170. Of this total the Field Ambulance supplies 321, 77 being in A Section at St. Bartholomew's Hospital, 95 in B Section at Guy's, 74 in C Section at the University College Hospital, and 75 in the new D Section above mentioned. There are nine medical officers—two majors, three captains, and four lieutenants. For the A certificate examination held in November, 1909, 202 candidates entered. Of these 105 were medical and 56 passed. Twenty-six medical candidates entered for the May, 1910, examination, and 15 passed. For the B certificate 2 medical candidates entered at the May examination, 1 of whom passed; 11 entered at the November, 1910, examination, and 10 passed.

That the training corps has already begun to fulfil its recognized objects is evident even during its second year, as 11 of its members received commissions in the Regular or Territorial Forces—5 in the former and 6 in the latter. One passed to the R.A.M.C., and 3 received commissions in the contingent itself. This is considered most encouraging, as the full advantages of the training in the corps do not accrue until cadets have taken the B certificate, for which at least two years' service in the Officers' Training Corps are required.

The criticism of the inspecting officer on the inadequacy of the general head quarters of the contingent has resulted in the promotion of a scheme for a considerable increase in the available accommodation, which the committee hope to have completed before the next annual inspection falls due.

## TERRITORIAL FORCE.

FIRST SOUTH MIDLAND FIELD AMBULANCE.

THE annual supper in connexion with the 1st South Midland Field Ambulance of Territorials was held at the Old Royal Hotel, Birmingham, on February 25th. Lieutenant-Colonel Cyril Howkins was in the chair. Proposing the toast of "The First Field Ambulance," Colonel W. P. Whitcombe, A.M.O., South Midland Division, said the success of the unit had been remarkable. A few months ago it had attained its full establishment, but now possessed 96 per cent., and with recruits coming in fast the full 100 per cent. was assured. In a few months many of the men would come to the end of their term of enlistment, but he hoped they would earnestly consider the position of the Territorial Force, and sign on for another period of service. Four years was not a sufficient time in which to learn their work, but by remaining in the unit they would be doing something for their country, helping to relieve suffering, and bringing many advantages to themselves. Lieutenant-Colonel Howkins, responding, appealed to the men whose time was nearly up to remain in the ambulance till it got into a more settled condition. There was not the slightest doubt, though War Office sanction had not yet been received, that their head quarters would soon be at the Great Brook Street Barracks. There was room there for a riding school and outdoor drilling, and plenty of accommodation for the holding of lectures.

THE (American) National Association for the Study and Prevention of Tuberculosis will hold its seventh annual meeting this year at Denver, Colorado, on June 20th and 21st, under the presidency of Dr. William H. Welch, of Baltimore.

THE New York State Legislature has been asked to appoint a commission to investigate the prevalence of tuberculosis in the State, and to suggest whatever legislative measures may seem necessary to remedy the condition favouring such prevalence. It is suggested that the commission consist of three assemblymen, two senators, the State Commissioner of Health, and one physician to be selected by the Governor. Another resolution contains a proposal for an amendment to the Constitution authorizing the Legislature to set aside an area of a thousand acres or less in the Adirondack State Park, on which may be erected a State hospital for the treatment of tuberculosis. According to the *Medical Record*, the supporters of this resolution urge in its favour that a proposal to erect a country hospital for the treatment of the disease nearly always meets with opposition from the people of the neighbourhood, whereas a State institution in the State park would meet with no objection.

# Obituary.

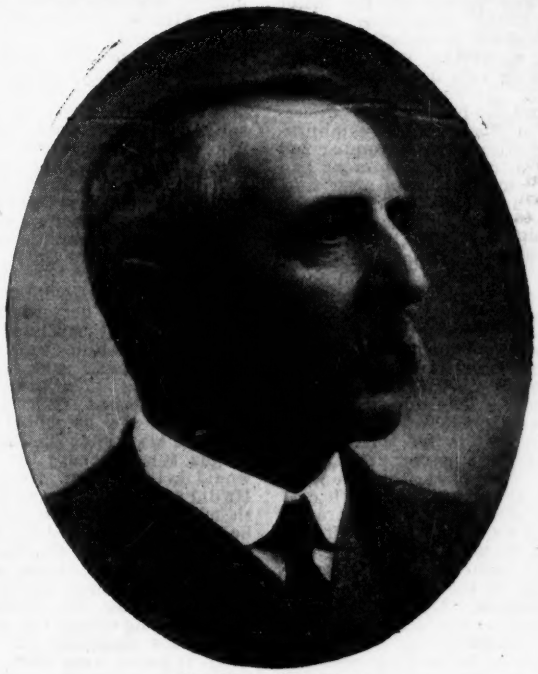
## C. A. MACMUNN, M.A., M.D.,

FORMERLY HONORARY PHYSICIAN, GENERAL HOSPITAL, WOLVERHAMPTON.

DR. C. A. MACMUNN, of Wolverhampton, well known for his physiological researches in relation especially to the application of the spectroscope to physiology, died after a long period of indifferent health at his residence in Wolverhampton on February 18th.

Charles Alexander MacMunn was the son of Dr. James MacMunn, and was born at Seafield, co. Sligo, in 1852. He was educated at Trinity College, Dublin, where he graduated B.A., with honours, in 1871, and M.B. in 1872. He became Honorary Pathologist and Physician to the General Hospital, Wolverhampton, and was subsequently appointed Honorary Consulting Physician to the Royal Orphanage, Wolverhampton. For some twenty years he was busily engaged in practice in Wolverhampton, and took an active share in the life of the town. Dr. MacMunn took a great interest in the Volunteer movement, and rose to the position of Brigade Surgeon-Lieutenant-Colonel of the Staffordshire Volunteer Infantry Brigade and received the V.D. He later became Administrative Medical Officer of the North Midland Division of the Territorial Force, from which position he retired in 1909.

When the South African war broke out he volunteered for service and served from 1899 to 1902 on the special hospital staff; he was appointed by Lord Roberts staff officer to accompany the Royal Hospitals Commission. For his services during the war he was mentioned in dispatches and received the war medal with three clasps; he also received the Coronation gold medal. After his return from South Africa, Dr. MacMunn had pleasing evidence of the esteem in which he was held, for he received a presentation from the medical profession and was entertained at dinner. He was appointed a Justice of the Peace for the county of Stafford in 1907. Dr. MacMunn was fond of sport and of foreign travel, and he recently presented a number of interesting objects he had collected to the Birmingham University, of which he was a life governor.



DR. C. A. MACMUNN.

*Photograph by* [*Bennett Clark, Wolverhampton.*

In spite of a life full of other interests and the calls of a busy practice, Dr. MacMunn found time to devote much of his energy to work of a scientific nature; but he frequently deplored the scantiness of the leisure time which he was able to devote to research work. His name has been mainly identified with the spectroscope, and his important work, *The Spectroscope in Medicine*, will for long remain a standard publication. He was not merely interested in the instrument itself, though he introduced many improvements in it, but was particularly occupied with its applications in physiological and medical directions. He published his very numerous monographs mainly in the *Proceedings of the Royal Society* and the *Journal of Physiology*. They dealt with numerous pigments in all parts of the vegetable and animal kingdoms, vertebrate and invertebrate, and his skill in the use of the microspectroscope enabled him to identify pigments in minute organisms, or minute parts of larger animals. His work on the pigments of muscular tissue, and his discovery of myo-haematin, were important as elucidating some of the problems of tissue respiration. His work on chlorophyll was also of far-reaching interest. His discovery of uro-haematoporphyrin was an important addition to our knowledge both of blood disintegration and of urinary composition in health and disease. But although the spectroscope was his favourite hobby, he possessed a wide knowledge of physiological and pathological chemistry, much of which is embodied in his book entitled *The Clinical Chemistry of Urine*. During the last ten years or so his scientific publications have been less numerous, and no doubt his busy life and his ill health will explain that. The scientific world, as well as his professional brethren and his patients, will unite in deploring the loss of one who did so much to advance scientific medicine. We understand that up till the time of his death he was engaged on a new work on spectroscopy, which unhappily he did not quite finish. He used new and special methods of his own invention, and all those who regret his too early death will hope that this posthumous work will see the light. Judging from his previous record, we cannot doubt that it will be full of interest, and have far-reaching effects in extending that branch of science to which he would have loved to have been able to devote all his life.

Dr. MacMunn was twice married, his second wife, who survives him, being the sister of the late Captain Webb who was drowned in attempting to swim the Niagara Falls. By his first wife he leaves three sons, one of whom is in the medical profession.

The funeral took place on February 23rd. The coffin, being placed on a gun-carriage provided by the local R.F.A. and accompanied by the military band and officers and men of the R.A.M.C.(T.), was drawn from the Drill Hall to St. Peter's Church, where the first portion of the service was held, and subsequently to the churchyard at Penn Fields.

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DR. DUNCAN KENNEDY, Perth, died at his residence on February 16th, after a short illness. Dr. Kennedy, who was 60 years of age, was a native of Oban. He came to Perth thirty years ago, and took over the practice of the late Dr. Nairne. For several years he acted as indoor medical officer to the Perth Parish Council and Poorhouse, while he was also medical officer of health for the Burgh of Auchterarder. Dr. Duncan is survived by a widow and grown-up family.

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THE death of Major R. E. WRAFTER at Dehra Dun on January 23rd, at the age of 77, is announced. Major Wrafter entered the Honourable East India Company's Bengal Medical Service in 1848, and served through the Punjab campaign in 1848–9, being present at the affair of Ramnuggur, the passage of the Chenab, and the battles of Sadoolapore, Chillianwalla, and Goojerat. At the outbreak of the Mutiny he was at Meerut, and subsequently took part in the engagements of the Hindun and Budleeke-Serai. He was at the siege and capture of Delhi, at the action of Nudjuffghur, at the siege and capture of Lucknow, and continued on service till the end of the campaign, including the attack on Fort Rooya, the action at Albygunge, the capture of Bareilly, and the pursuit of the rebels to Shahjehanpore and Mohumdee. He entered civil employ in 1864, and was civil surgeon at several stations in the United Provinces and the Punjab. He retired from the service in 1888, and settled in India.

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THE Orient Line announce a cruise at Whitsuntide by the *Otranto*, visiting Spain, Morocco, Gibraltar, Madeira, Canary Islands, and Portugal. The cruise is to occupy twenty-one days, and the fares range from 18 guineas.

# Medico-Legal.

## ALLEGED NEGLIGENCE OF A BONESETTER.

*Thomas v. Barker.*

This was an action brought by Mr. Charles Rowley Thomas, of Messrs. Ouseley, publishers, against Mr. Herbert Atkinson Barker, bonesetter, of Park Lane, for damages for alleged negligence in the performance of operations which were alleged to have resulted in the amputation of the plaintiff's leg. The defendant denied the negligence. The case was tried by Mr. Justice Darling and a special jury. Sir Edward Clarke, K.C., Mr. A. H. Spokes, and Mr. S. Ingleby Oddie appeared for the plaintiff; and Sir Edward Carson, K.C., and Mr. Holman Gregory, K.C., appeared for the defendant.

The following account of the case is summarized from a full report which appeared in the *Times* of February 21st, 22nd, and 23rd. Sir E. Clarke said the plaintiff, a young man aged 24, when a schoolboy at Shrewsbury had twisted his knee in diving from a diving board. He suffered weakness and stiffness of the knee from time to time, but it was only occasionally that it seriously interfered with his enjoyments. After leaving school he went to Cambridge, where he remained for three years. When he left the university he was for a time a student at Charing Cross Hospital. Between 1906 and 1908 the knee gave him serious trouble, and he determined to leave the medical profession for employment in a firm of publishers. Occasionally he was able to take exercise; he played tennis and swam, and, although the condition of his knee was improving, there was considerable stiffness and pain. In the latter part of 1909 the plaintiff visited the defendant, accompanied by one of his sisters. The defendant said it was a bad case, but he would undertake it. He also used very encouraging language with regard to the success he had had in cases of that kind. He suggested that the plaintiff should first have some radiant-heat baths. Consequently the plaintiff decided to go to Miss Folland's establishment in Royal Avenue, Chelsea, and between November 2nd and the date when the defendant first dealt with him he had these baths. The plaintiff saw the defendant again after this, and it was arranged on November 25th that the plaintiff should attend at the defendant's place to be put under an anaesthetic. Gas was administered by Mr. Axham, and when the plaintiff recovered consciousness the defendant looked hot and said it had been a tough job. The plaintiff felt some slight improvement after that, and for a short time the joint was certainly looser. The pain returned later, and the plaintiff again saw the defendant, who suggested he should have two more radiant-heat baths. On December 16th he for the second time was put under an anaesthetic. Again something was done to the knee and Mr. Barker again said it had been a tough job. Having paid five guineas for each operation and one guinea for each attendance, the plaintiff found that ten days or a fortnight later a sore appeared on the side of his leg. The knee was, in fact, tuberculous, and the proper treatment in such cases was perfect rest for the limb. What happened in the plaintiff's case was that the joint was so disturbed by the defendant's operations that the bacilli which were in the knee and encapsulated at the time were set free, and made their way into the system and most seriously injured his health. The sore became worse, and on March 29th the plaintiff saw Dr. Bunn, whom he had consulted in earlier years. Recognizing the seriousness of the case, Dr. Bunn called Mr. Waterhouse into consultation. Mr. Ballance was also called in, and the various doctors in consultation decided that the only chance of saving the plaintiff's life was immediate amputation. On the operation table so grave was the plaintiff's condition that death was apprehended. The operation, which was performed on April 15th by Mr. Waterhouse, together with Drs. Bunn and Carruthers, proved successful. Before the operation a letter was sent by the plaintiff's solicitors on April 13th to the defendant, claiming compensation. The solicitors replied that the defendant undertook no responsibility and promised no cure. The defendant had also written a letter to the plaintiff in these terms: "I am very surprised at your letter. I only undertook your case on the condition that I undertook no responsibility. You admitted you felt better, and that fact is recorded in my books. I said to you that I could do no more than give treatment under gas, and I also informed you that amputation would probably be necessary, and that it looked as if sarcoma were present. I also said the case was an unsatisfactory one for me, but that I should have pleasure in returning your fees and those of the doctor who gave you gas." Sir E. Clarke said there was in fact no such condition as that alleged in the letter. It was absurd to say that he accepted no responsibility, as if that covered any negligence. The letter also stated that the defendant had begged the plaintiff to see Mr. Rock Carling, and that that was recorded in the casebook. In fact the name of that gentleman was never mentioned until January 19th, when the plaintiff showed defendant the wound in his leg. The defendant sent another letter on April 15th, in which he said: "Since sending you the hurried letter of yesterday I have looked up my notes," and then the writer gave what purported to be extracts from a casebook. So far, continued counsel, the casebook had not been produced, and he would abstain from comment on that omission until he should see Mr. Barker in the box. Then they would see whether such a book existed at all, and whether, if so, the entries corresponded to those alleged to have been inserted. There was, however, an appointment book, and there was in that book an entry against the date November 25th, 1909: "Rowley Thomas—Follands—tubercle: no hope: received radiant-heat bath to allay swelling." Sir E. Clarke said he referred to that entry because it appeared that the defendant knew that there was tuberculosis in the joint. If he knew that on November 25th, two days before the operation was performed, not only was that operation of November 27th bad treatment in the case, but it revealed the highest degree of negligence, inasmuch as it was agreed on all hands that wrenching was dangerous. Furthermore, the way in which the anaesthetic was administered was improper. The character of anaesthesia produced by gas was that the muscles became rigid. Presumably the operation was performed in order to improve the condition by gentle movement. Ether or something else should have been used, which did not produce rigidity of the joints.

The plaintiff, Mr. Charles Rowley Thomas, examined by Mr. Spokes, bore out the opening statement of Sir E. Clarke. He injured his knee in the summer holidays of 1901. He played football later, and did not suffer very much pain. He knew the defendant was not a qualified surgeon, but he thought the defendant would put him right at once. He did not know there was tubercle in his knee. The defendant made an appointment for November 27th, 1909, for the first operation. He said he would put witness under an anaesthetic and break down adhesions. Between November 27th and December 3rd the knee was swollen, and on December 2nd the defendant suggested two more radiant-heat baths. On December 14th the defendant said the knee was going on well. On December 16th the second operation was performed, and gas was again administered by Mr. Axham. At an interview on January 26th the defendant said plaintiff would be able to dance again next year. His salary was some £110 per annum, and he was absent for some six months.

The plaintiff was cross-examined by Sir E. Carson. In reply to a question whether he had any doubt that all his subsequent trouble originated from the accident, he said he did not know. He found that when he played football the leg became swollen, stiff, and painful. He was laid up in bed with splints for over seven weeks. In 1905 he again hurt his knee. The joint became swollen and full of fluid. He was not lame, though he might have had a slight limp. In 1908–9 the knee was again much swollen, and he then saw Mr. Clogg and Mr. Stanley Boyd at Charing Cross Hospital. Neither told him anything about tuberculosis; they said they would make some tests. He never saw the result of the tests, but afterwards the doctors at Charing Cross communicated with his doctors at home. In April of 1909 he went to a nursing home and had his knee massaged. He did not after that give up tennis and other sports. He was not ordered a complete rest. He gave up all rough sport, but continued to swim. Asked how many doctors attended him from time to time before Mr. Barker attended him, the witness said ten for certain; it might have been twenty. He mentioned Messrs. Boyd, Clogg, Layton, Wilkes, Halstead, Carruthers, Bunn. That did not include doctors he saw at school. He saw no doctor at Cambridge. Early in May, 1909, Dr. Halstead saw his knee. He did not say it was tuberculous. He said swimming and light exercise would do it no harm. He did not tell him to be careful and rest. He did not go back to the doctors at Charing Cross because he thought Mr. Barker would put him right at once. He believed he told Dr. Bunn that he had been to Mr. Barker. Dr. Bunn merely asked what Mr. Barker was doing, and the witness said he was breaking down adhesions. He thought Dr. Bunn said the adhesions ought not to have been broken down. Asked whether Dr. Bunn had ever suggested there was was anything wrong till after the operation, the witness said he did not remember it. When he first saw Mr. Barker the thigh muscles were more or less wasted. He did not feel the tendons to be much contracted. He walked with the aid of one, not two sticks. Asked if Mr. Barker had not said there was evidence of a vast tuberculous disease, the witness said he did not think so. He would not swear that he did not. He swore positively that the defendant did not say anything about amputation. The defendant did not tell him on November 25th that the leg was hopelessly tuberculous and that there was no hope of anything but temporary relief. He would not swear that the defendant did not say he must have gas to produce complete relaxation. Asked whether defendant did not do everything he could to induce him to see a surgeon, the plaintiff said he did not think so. Mr. Barker only mentioned a surgeon twice. Asked who suggested that he should bring this action, the plaintiff replied that one of the doctors did. He did not know which one; all of them, he thought.

Miss Alice Thomas, examined by Mr. Oddie, said she went with her brother, the plaintiff, to the defendant, who said what had to be done could not be done without an anaesthetic. He said he was quite sure he could do her brother a lot of good, and that he would be able to walk without a stick. Cross-examined as to whether Mr. Barker said he hoped he would be able to relieve her brother's leg, the witness replied in the affirmative.

Mr. Joye, a cousin of the plaintiff, giving evidence as to what occurred at the first operation performed on the plaintiff, said the defendant perspired very much after it, and said it had been "a tough job"—or "a hard job." Asked in cross-examination when he first remembered all about the conversation at the operation the witness said it was always present to his mind.

Miss Elizabeth Muriel Thomas, examined by Mr. Oddie, said when she accompanied her brother the defendant looked hot after performing the operation. He said it was a very bad knee, and he rather thought it was sarcoma. Cross-examined sh

said she thought she was told the meaning of sarcoma by one of their family doctors.

Dr. Bunn, giving evidence, said in the beginning of December, 1908, there was a recurrence of the knee trouble. He treated plaintiff with iodine to reduce the effusion. In 1909 the plaintiff underwent massage and there was a softening of the joint. The next time he saw the knee was in April, 1909. It was then improved in appearance. That was before any operation. He next saw the plaintiff's knee in March, 1910, when he was in bed. The limb was much swollen and heated, and there was a sore on the right side below the knee. He could not say for certain whether there had been an abscess there before, although the plaintiff suggested it. Dr. Bruce was called in to make a radiogram of the knee, and after consultation an amputation was decided upon. The operation was necessary to save the plaintiff's life. His general condition was so bad that they were afraid he would die on the operating table. They were afraid of septic poisoning. In answer to other questions, the witness said violence was dangerous because the disease from being merely localized became generalized. The effect of breaking down adhesions would be to set free tubercle bacilli, which might attack the lung or any other organ. In cross-examination he was asked if he ever diagnosed the case. He replied, Yes, as synovitis in the knee; and he was suspicious of tubercle in April, 1909. He advised plaintiff to be out of doors as much as possible, and to use his leg very gently. He rather thought he had not told the plaintiff that he suspected tubercle, because the plaintiff was nervous. He did not think the condition of the bones was such as to point to tubercle long before November, when the plaintiff came to him. There was thickening of the tissues round the joints. There was a partial dislocation of the lower bones and some wasting of the muscles. Asked if the disease plaintiff was suffering from was what is known as "white swelling," the witness said he did not know. It was a very loose term. The knee-cap was diseased, but had not been diseased when he saw plaintiff before. He would not say the walls of the sinus were hard and fibrous and hard to cut. Displacement of the tibia might mean other things than tubercle; it might mean ankylosed joint.

In re-examination by Sir E. Clarke, Dr. Bunn said that at no time before March, when he saw the plaintiff, was there active tuberculosis.

Dr. Carruthers, examined by Sir E. Clarke, said he had heard Dr. Bunn's evidence and fully agreed with it. Cross-examined by Sir E. Carson, the witness said he had first noticed the wasting of the thigh muscles in April, 1902. Asked if he said he could estimate the violence of the wrench and the condition of the knee in 1910 when he had not seen it for ten months, the witness replied that he never tried to estimate the amount of the violence.

Dr. Ironside Bruce said he had no doubt when he saw the plaintiff in 1909 that he was suffering from tubercle. (A radiograph taken in 1910 of the condition of the femur, tibia, and patella was then put in.) Asked if he told the plaintiff he was suffering from tubercle, he said No; they were not in the habit of telling patients that.

Mr. Waterhouse, Surgeon to Charing Cross Hospital, examined by Sir E. Clarke, said when he saw the plaintiff in April, 1910, the knee-joint was much swollen, and the sinus on the outer side was discharging. The plaintiff was in a feverish condition, and showed all the symptoms of toxaemia. He judged from the symptoms that the tuberculosis was of long standing, but pyogenic infection had been superadded and masked the symptoms. The microbes gained entrance to the joint through the sinus. It would require force to re-alight the tuberculous process if quiescent. Encapsulation was the effort of Nature to render the bacilli harmless. He formed the opinion that the patient had an equal chance of living or dying under the operation for amputation. The witness then read a report of the condition of the knee-joint at the time of the amputation, from which it appeared that the knee-joint showed septic arthritis supervening on a tuberculous condition. Assuming the disease were quiescent in 1909, there would have been a good prospect of recovery, with, however, some limitation of the movement of the limb. Asked by the Judge what would become of the bacilli, he said that was rather an open question. After a lapse of a considerable number of years the bacilli became disintegrated. One might say they died of old age. In answer to further questions, the witness said it was most improper to break down adhesions by force in the case of quiescent tubercle. The result of such breaking down would be swelling and pain, and the tubercle bacilli would multiply and attack adjacent parts. Speaking as to anaesthetics, he said gas was the safest anaesthetic for a sudden, violent operation. Assuming a limb were to be examined, gas would be most inappropriate, and no anaesthetist or surgeon would choose it. Gas was usually accompanied by rigidity, and therefore rendered examination of the joint impossible.

In cross-examination by Sir E. Carson, the witness said he had broken down adhesions himself. It was a very violent operation. One could not do any prolonged operation under gas. Fifty to sixty seconds was the average. He had no doubt, from the history of the plaintiff, that he had had tuberculosis for a long time, probably since 1901. He had never known swimming to cause any injury to the knee. He did not agree that the muscles of the back of the leg were consistent with the heels having been drawn up for a long time. He did not suppose the heel was ¾ in. from the ground. The bones did not indicate that the disease was of long standing. There was absolutely no doubt the case was not one of pure tuberculosis. Tubercle microbes emitted no smell. Putrefying microbes were swarming when he cut into the joint, and the stink was appalling.

Mr. W. M. Anderson, an anaesthetist to Charing Cross Hospital, examined by Mr. Oddie, said he administered the anaesthetic to the plaintiff on the occasion of the amputation in April, 1910. In the case of an operation on a knee-joint he would use chloroform. Gas was the worst possible thing to use, because it produced rigidity. In cross-examination by Sir E. Carson, he said if there were tuberculous trouble he would not give ether. Asked, if the patient felt better immediately after the operation that would not look as if the muscles had been relaxed, he said not in his opinion. Re-examined, he said it was impossible to perform a careful examination under gas because there would not be time.

Mr. Ballance, examined by Sir E. Clarke, said he was called in on the occasion of the proposed amputation of the plaintiff's leg. He felt certain that the knee was tuberculous. No forcible movement of the joint would be defensible. If the patient were in the habit of swimming and taking exercise there would be no reason at all for administering an anaesthetic for the examination of a limb. Gas was never administered for the examination of the knee-joint unless one wanted to break down adhesions. There was no justification for breaking down adhesions if there were any suspicion of tubercle.

Cross-examined by Sir Edward Carson, the witness said that if a man would not make an examination of a tuberculous joint without an anaesthetic he ought to give up his profession.

Sir E. Carson, in opening the case for the defendant, said that if Mr. Barker had been one of the regular fraternity of the profession the action would never have been heard of. They were asked to attribute to Mr. Barker the whole of the effects of a disease from which it was clear the plaintiff had been suffering for years. The defendant had attended to some 30,000 cases, and was a perfect genius in his profession. Some 94 per cent. of his cases were absolute successes. They were dealing with a tuberculous patient. He had been suffering since 1901, and it was clear that whenever he twisted his knee he did not recover in the way any ordinary young man would. He had to lie up for weeks. The hypothesis of encapsulation was absolutely theoretical. The plaintiff had no doubt played tennis and engaged in swimming, but the theory as to his condition before he saw the defendant was pure imagination. The plaintiff never had been well. Mr. Barker not only asked but pressed the plaintiff to see a surgeon. The defendant never held out hopes of being able to cure. He was a mere manipulator of joints. The reason he asked the plaintiff to see a surgeon was because he had made up his mind as soon as he had seen the plaintiff's knee that sooner or later the tuberculosis in the joint would necessitate amputation. After the first occasion the defendant had no wish to see the plaintiff again. But he consented to see him again from time to time, partly because the plaintiff was in such distress, partly because the plaintiff assured him he was a medical student, and partly because he hoped the swelling would in the meanwhile be reduced by radiant-heat baths. Anaesthetics were always employed by the defendant in examining the joint, the reason being that rigidity was essential, because patients could not bear the pain of having their limbs touched. There was not a particle of truth in the allegation that he had used force in breaking down the adhesions. The defendant's case was that such violence would undoubtedly have been most improper. The sore on the side of the leg was produced by a fall in Switzerland, a fact which the plaintiff had communicated to the defendant.

Mr. Herbert Atkinson Barker, examined by Mr. Holman Gregory, said he had cured about 90 per cent. of the cases he had undertaken. When he saw the plaintiff there was every evidence of a vast tubercular disease. The hamstring tendons were very much contracted, and the tibia was displaced backwards on the femur and flexed to an angle of 40°. It was not a case for manipulative methods. He urged the plaintiff to see Mr. Rock Carling and Mr. A. H. Tubby. The witness told him he could do nothing and that the joint would probably have to be amputated. The plaintiff said he did not think it was tuberculosis, and also said he had been a medical student. The witness then suggested radiant baths might give him some relief. The witness said he would undertake no responsibility, and that it was only on that understanding that he would continue to see the plaintiff. It would be suicidal to break down adhesions in the case of a tuberculous joint. He had never mentioned such a thing to the plaintiff. He did say—probably on the first occasion—that he would put the plaintiff under an anaesthetic in order to make an examination of the knee. He had some three or four cases a day. He seldom examined tuberculous cases under gas; he always sent them to Mr. Tubby. As a rule he did not bother himself about tuberculous cases, but if he did, he put them under gas. He told the plaintiff's sister that the knee was very bad indeed and that the joint was probably sarcomatous. He certainly did not say to her that he would cure the plaintiff or that he would soon be able to walk without a stick. The plaintiff returned to him three weeks later, said he had had some ten or eleven applications of the hyperaemic treatment by radiant baths and looked very jubilant. The plaintiff agreed to being examined under gas. The witness then gave details of the result of the first examination on November 27th. There was no question that the knee was in the most advanced state of tuberculosis. He used no force on that occasion, nor did he break down any adhesions. The examination lasted about forty-five seconds. There was nothing to make him hot. He next saw the plaintiff on December 3rd, and told him that he

might have more radiant-heat baths; he again told him to see a surgeon. The next occasion on which he saw the plaintiff was December 14th, and the plaintiff then said he could move his leg and had more control over it. On December 16th the plaintiff again visited him, having in the meantime had some radiant-heat baths. The hamstrings were much softer and relaxed and the joint seemed smaller. He examined him under gas for the second time, and on his regaining consciousness the plaintiff said he felt much better. On January 19th, when the plaintiff returned from Switzerland, he saw him again. He found a slightly broken area on the outer side of the knee. Plaintiff said he had slipped and twisted his knee. Witness again advised him to see a surgeon. He never saw the plaintiff again after that, and presumably he had taken his advice.

In answer to questions by Mr. Holman Gregory as to a casebook, the witness said he only made entries in cases which required to be recorded. He did not enter one in a hundred cases. The witness then read the following recorded entry: "Told could not hold out any hope of recovery, as suspected disease of joint. Sent to Miss Folland's house for radiant-heat baths to ease joint. Recommended to surgeon watch joint, but accept no responsibility. Patient agreed. Expect amputation necessary." The entry was made in his own handwriting on November 2nd, 1909.

Cross-examined by Sir E. Clarke, the witness said he had no book in which he recorded particulars of his cases. On its being put to him that the casebook produced was not of much use if there were only seven entries since the entry *re* Thomas, the witness said he very rarely used it. Sir E. Clarke said the entry of November 27th, 1909, ran: "Mr. Rowley Thomas af. op. gas," and asked what "af. op." meant. The witness said it meant he had an anaesthetic given. The examination proceeded:

Sir Edward Clarke: The entry of December 14th is: "12.15 Mr. Rowley Thomas," and "December 16th, 12.15 Mr. Rowley Thomas (E)," and then against note (2), "Moved joint under gas gently; undoubtedly diseased." Now where in any one of those entries do you find that at such visit Mr. Thomas said he felt better?—There is a mistake in my letter. There is no such entry in my casebook.

Sir Edward Clarke then put to the witness his letter to the plaintiff's solicitor of April 15th, in which he had given what purported to be a series of notes from his book relating to the case. When you wrote that letter saying "Since writing the hurried letter of yesterday I have looked up the notes in the case *re* Thomas, and send them along for your perusal," did you intend Mr. Thomas and his advisers to believe those were notes from your casebook?—I did not intend Mr. Thomas's solicitors to believe anything. They were notes from my recollection.

Why did you not say you were making the notes up? Do you think the letter is an honest one?—The notes were elaborated. I admit now I ought to have said they were not exact.

Asked if he wrote in his casebook "Tubercle. No hope case," he said at the time of the appointment, Yes. On its being put to him that it had been said in the course of the trial that on that day he told Miss Thomas the patient was suffering from sarcoma, he replied that he also said it might be tuberculosis. He was not an authority. The examination proceeded:

You have said your treatment was manipulative only. If it were a hopeless case why did you go on treating him?—I expressed the strongest disinclination to go on seeing him.

The methods you afterwards adopted were manipulative movements?—No, certainly not. I merely slightly moved the joint to make my examination. There was no treatment.

You knew your treatment would be useless, yet you continued to see him?—I was perfectly entitled to see him.

You saw him on November 19th and 27th and December 14th and 16th. Do you suggest you were entitled to go on charging him five guineas each time for an examination and other fees for seeing him when you knew you could do him no good?—He was having radiant-heat baths, and I wanted to confirm my opinion.

In answer to other questions the witness said he would probably charge less in the case of a medical student. Had he been operating he would have charged four or five times as much. In the case of any person other than a medical student he would have charged 10 guineas for an examination.

Asked if he had ever mentioned in any letter or note that he found a swelling on November 2nd, he said No. It would ordinarily be associated with tuberculosis. In reply to further questions, he said he pointed the swelling out to the patient and advised him to see a surgeon. Any one could have seen it was a case of tuberculosis. It was put to him that if a wrench took place on December 16th the result would be a sinus and an abscess and then a sore on the surface, and he was asked if he agreed with that sequence. The witness replied that he would rather not express an opinion. Asked, further, if any one could see it was a case of tuberculosis on November 2nd, what need there was to administer gas on November 27th and December 16th, he replied that he wished to see the displacement, both for his own satisfaction and the patient's benefit. Asked if when he saw the patient on January 19th with the sore and the swelling he did not recognize that that was just what would have occurred if he had wrenched the knee, the witness replied: "Yes; but it might have been caused by a twist or a fall." Asked if he recognized that a forcible wrench by a bonesetter might cause it, he said: "Yes, some bonesetters. But I have had no experience of wrenching such joints. A surgeon even might cause it."

Re-examined by Mr. Holman Gregory, the witness said his reputation was such that he could now charge very heavy fees. He had to refuse more than half the applications that came to him. If the plaintiff's had been a case for manipulative treatment, he would not have suggested his going to a surgeon. Asked the exact meaning of the word "Op." in his appointment book, he said in every case where gas was going to be given for any purpose whatever and when a doctor was going to be at his side he put the word "Op." Asked by the Judge what he meant by saying he undertook no responsibility, he replied that it was very bad and was bound to go from bad to worse. Asked further why he did not say in his letter that he undertook "to watch only," he replied that the letter was written under great stress. The examination proceeded:

You say in your letter that the casebook records that you undertook no responsibility. That was not written under stress.—I had not then looked at the casebook.

You wrote another letter on the 15th, saying, "Since sending you the hurried letter of yesterday I have looked up the notes, and send them along." What notes had you looked up?—The notes in my appointment book, the casebook.

How came you to write out all these dates in your letter when they were not notes at all?—I agree it was an amplification.

Did you think you could make out such a strong case that the proceedings would be dropped?

The witness was understood to reply: I don't think I thought so. I was too agitated to think about anything.

Sir E. Clarke: He began by saying, "I thought they would hesitate to bring an action."

The jury at this point asked to see the casebook. The book was handed to them, and Mr. Justice Darling said they would have a room in which to look at the books. A juror said they noticed there were two pages torn out.

Mr. Axham, L.R.C.P.Ed., M.R.C.S., examined by Sir E. Carson, said he had administered nitrous oxide gas in a great many cases for Mr. Barker. He attended on the occasion of the administration of gas on the plaintiff on November 27th. There was no violence used. If there had been he would have protested, because it would have been wrong, the knee being tuberculous. He noticed nothing unusual in the defendant's face after the examination. Mr. Barker's face was usually rather oily. It was an oily exhalation.

Cross-examined by Sir E. Clarke, the witness said his fees came from the public, not from Mr. Barker. Mr. Thomas never paid him anything, but sometimes patients paid him and sometimes it was included in Mr. Barker's fee. Asked as to the appointment book, he said the word "Op." meant nothing at all. "D.D." meant probably a fairly large fee. "E" meant five guineas, and "A" four guineas. Sir E. Carson, interposing, said he was told the witness was wrong about it. Mr. Barker could speak as to this. In reply to further questions by Sir E. Clarke, the witness said he did not remember the nature of the operations on the three occasions other than the first. He could not remember whether Mr. Barker handled the plaintiff's knee. He could only remember a gentle handling of the joint. In reply to the Judge, the witness said he had reason to remember Mr. Thomas's case. He went home and said to his wife he was sorry the defendant had taken up the case.

In answer to further questions by Sir E. Clarke in cross-examination, the witness said he really could not follow counsel's questions, as they were so confusing. He had a wretchedly bad memory for names and faces.

Miss Folland then gave evidence. She said the plaintiff came to her home for radiant baths, each lasting one and a quarter hours. The plaintiff told her when she called attention to the sore that he had had a fall.

Cross-examined by Sir E. Clarke, the witness said she had not had patients from Mr. Barker before 1908. Mr. Thomas paid a guinea each for the baths, but she had no entries to fix the dates of the baths.

Dr. Garrard, surgeon of Eversfield Hospital, giving evidence-in-chief, said he had had experience of tuberculous joints, and had operated on such cases. They frequently ended in amputation. He had known the defendant for under one year. He was a man of great skill.

The Judge said he could not see what issue evidence of general skill went to. The evidence was therefore not admissible.

Continuing, Dr. Garrard said he saw the plaintiff at Dr. Bunn's house. The plaintiff said on that occasion that Mr. Barker insisted on his having gas, as he could not examine the knee without. The plaintiff said he was in no pain whatever after he returned to consciousness. He said he had walked without the aid of sticks down Piccadilly. He did not remember the plaintiff saying anything about violence having been used. There had been dislocation of the bones when he examined the limb after the amputation had been performed; but that might have taken place when the limb was put in a jar of formalin. The whole of the indications showed tuberculosis in a very advanced state. The ligaments and muscles were gone. The joint was flexed almost to a right angle. From the radiograph he could see nothing from which he could deduce encapsulation. After encapsulation was set up the joint should be at rest for some time; the patient might have to rest for years. He should say encapsulation certainly could not be broken down in thirty or forty seconds. If it had been broken down in an operation the patient would be in considerable pain, because the tissues would be broken, and would not be able to put his foot to the ground or walk. In a week an inflammatory process would be set up, and there might or might not be a septic condition. He had known of two cases of encapsulation being broken down. One case had resulted in amputation in

three days, and in the other case the patient died. He himself had never examined a knee of this kind with an anaesthetic. Asked if he saw any impropriety in giving gas for an examination, the witness answered that he would not give it himself. He would use chloroform. The witness agreed that gas was the least dangerous anaesthetic.

Cross-examined by Sir E. Clarke, he said he had frequently had to examine tuberculous joints. It took a considerable time. He had always been able to make an examination without an anaesthetic. He would use chloroform if he used one at all, because one had longer time for examination, and the joint was relaxed. Gas caused rigidity, and defeated the purpose of the examiner. He had never heard of the examination of a tuberculous joint in forty seconds. When he saw the knee it had been in formalin for nine months.

Sir Edward Clarke then put to the witness the report signed by Mr. Waterhouse, Drs. Bunn, Carruthers, and Anderson, saying that all the muscles were oedematous, that the pyogenic organisms had gained access to the joints through the sinus, and that the condition was one of septic arthritis supervening on tuberculosis, and asked him if he agreed with that report. The witness replied in the affirmative. Re-examined, he said the arthritis was caused by microbes going up the sinus into the joint.

Dr. Phillip said he had been in practice twenty-two years. For twelve years he had been practising as operating surgeon in Belfast. He now practised in London. He saw the plaintiff at Dr. Bunn's on January 18th. The plaintiff said he felt no pain after the gas, but that he did not remember much about it. When he examined the limb after the amputation, the joint was in a very advanced state of tuberculous disease. He should say the limb was doomed to amputation in November, 1909. There was no effective encapsulation as a rule. Great violence would be required to break it down. In a very short time—within twenty-four hours—the plaintiff would have been in exquisite pain. There would have been signs of fracture and tearing of the tissues about the joints had violence been used. There were no such signs in the case of the plaintiff. He would never have been able to walk again had violence been used.

Cross-examined by Sir E. Clarke, he said he had never heard of an intentional case of wrenching a tuberculous knee. He did not think the fact that the plaintiff was able to use his leg indicated a quiescent state of the disease. The fact that he had some pain would show that it was active. The tissues were actually destroyed. Asked whether he agreed with the report of Mr. Waterhouse and the other doctors, the witness said he believed the joint was disorganized before the amputation. Answering other questions as to the report, the witness said there would not have been, under proper antiseptic treatment, any pyogenic organisms.

Mr. Justice Darling said: But there was not proper antiseptic treatment here. There was a sore, and it burst, and that sore had existed for months.

Mr. Walter Whitehead, one time Professor of Clinical Surgery at Manchester, examined by Mr. Holman Gregory, said he agreed with the evidence of the previous witnesses called by the defendant. He had recently seen the amputated leg, and formed the opinion the knee must have been in a hopeless condition in November, 1909, when it was examined by defendant.

Sir E. Carson, in addressing the jury, said the defendant had been able to secure three of the most eminent surgeons in the profession to give evidence on his behalf. They were asked to find negligence. Let them be sure there were adequate grounds and not be satisfied with such slender ground as that of the theory of encapsulation. The defendant's letters no doubt were unfortunate in wording, but the main fact remained the same, that everything in April, 1910, could be deduced from the facts admitted and the notes the defendant had actually made upon the case. If the note in the casebook was written at the time it purported to be written, all the prejudice imported in the case from the letters the defendant had written went by the board. Sir E. Clarke had not, when he read the entries in the appointment book, read the entry of the 16th, which ran, "Moved joint under gas gently — undoubtedly diseased," and Sir Edward had made use of the entries in the appointment book, and then, when it suited his purpose, had suggested by his cross-examination that they were made up for the purposes of the action. Counsel commented upon the absence of Messrs. Boyd and Clogg, of Charing Cross Hospital, who had examined the limb and taken tests. There was not a single witness who could give any evidence that there was encapsulation in November and December, 1909, and if that theory went, there was no case against the defendant. There was no calling in question the skill of the defendant in diagnosing the case; and if he had diagnosed the case accurately what need was there of any force? With regard to the evidence of Mr. Axham, Counsel said there was absolutely no reason why he should take the trouble to come to the court and give untrue evidence. If the jury believed the defendant, he had told the plaintiff every time he saw him that he must see a surgeon; and the plaintiff admitted having been so advised on two occasions. Yet, notwithstanding that, Sir E. Clarke was suggesting that so anxious was the defendant to snatch a few guineas from a young man that he grasped at the case at all costs.

Sir E. Clarke, addressing the jury, said the case practically resolved itself into one thing: Did they believe the plaintiff's account of what took place, or did they believe the defendant? Mr. Barker's evidence was not such as they could rely upon. Writing on April 15th, he had referred to what he calls his notes of the case. There were no such notes as were indicated, and defendant admitted he had elaborated what were there. If, knowing the plaintiff's leg to be in the last stage of tuberculosis, the defendant made any statement to the plaintiff or to the plaintiff's sisters to the effect that he would effect a cure, then surely that was an end of the case. Sir Edward Clarke then referred to the evidence of Dr. Garrard, who had said that he had made many examinations of tuberculosis, but would never have dreamt of making such examinations under gas. Alluding to the report signed by Mr. Waterhouse and Drs. Bunn, Carruthers, and Anderson, as to the condition of the limb when it was amputated, he said that that condition was exactly what one might have expected if the bacilli were set free by some such wrench or other violence as was alleged. He asked them to say that on the defendant's own evidence alone he had been guilty of gross negligence.

Mr. Justice Darling, summing up, said there was no doubt the defendant was a man of great skill in his business. But, though he had no degrees, he could not rely upon that to excuse any want of knowledge. The greater his skill in the manipulation of joints, the greater was the degree of care the plaintiff was entitled to expect of him.

Referring to the evidence in detail, His Lordship said that if at the first examination (assuming it were an examination) the defendant had really told plaintiff the case was such a hopeless one that he must go to a doctor, and that there was no chance of saving his leg, then why put the plaintiff to the expense of another 5 guineas for a second examination? What need was there for a second examination at all? Did they believe that only an examination took place on each occasion? If they could not make up their minds upon that, the plaintiff's case was gone. Referring to Mr. Joye's evidence, His Lordship said if they believed that evidence it certainly pointed to something having been done very much otherwise than a gentle movement such as the defendant had described in his letters and evidence. The crux of the case was what was done on the two days in question, and the evidence of the defendant upon that was absolutely irreconcilable with what the plaintiff's witnesses said.

The jury returned a verdict for the plaintiff for £21, having been away for one hour.

Judgement and costs accordingly.

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### WORKMEN'S COMPENSATION ACT, 1906.

THE Home Office has published a list of the names, addresses, and districts of certifying factory surgeons in England and Wales. The duties of the certifying surgeon have since 1907 been extended to industries outside the Factory Act by the provisions in the Workmen's Compensation Act with respect to compensation for industrial disease, under which a worker in those industries before he can claim compensation for disease has to obtain a certificate from the certifying surgeon; and this list has been prepared as a ready means of reference for workers and their representatives desiring to ascertain the name and address of the certifying surgeon to whom application must be made in any particular case. (Persons employed in factories or workshops can always ascertain the name and address of the certifying surgeon by reference to the abstract posted up in the works.) The list is published at 1s., and can be obtained, either directly or through any bookseller, from Messrs. Wyman and Sons, Limited, Fetter Lane, London, E.C. Similar lists for Scotland and Ireland will be published in due course.

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# Medico-Ethical.

*The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.*

### PROFESSIONAL CHARGES.

F. C.—The fees mentioned seem to be extremely reasonable, and under the circumstances it is quite fair to expect the estate to pay.

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# Medical News.

AT the meeting of the Pharmaceutical Society of Great Britain at 17, Bloomsbury Square, W.C., on Tuesday next, at 8 p.m., a paper on the therapeutic uses of radium, illustrated by an emanatorium and other exhibits, will be read by Messrs. H. C. T. Gardner and O. A. Elias.

PROFESSOR KITASATO has been commissioned by the Japanese Government to proceed to Manchuria with an official from the Colonization Office to report on the measures to be adopted to prevent the diffusion of the plague. The Government has asked for a subsidy of £200,000 to meet the expenses caused by the epidemic.

A CONFERENCE on the medical inspection and treatment of school children, promoted by the Fabian Education Group, will be held on Thursday, March 16th, at Clifford's Inn Hall, Fleet Street. The chair will be taken at 8 p.m.

by Sir Victor Horsley, and Mr. Reginald Bray, L.C.C., will read a paper on what has been done by the County Council. Miss Marian Phillips, D.Sc., will follow with a criticism, and Miss Margaret McMillan will speak on what might be done. Questions and debate will follow.

THE annual general meeting of the British Medical Benevolent Fund will be held at the house of the Medical Society of London, 11, Chandos Street, W., on Monday next, at 5 p.m. The meeting will be addressed by the Presidents of the Royal Colleges of Physicians and Surgeons, and the Master of Downing College, Cambridge (Professor Howard Marsh).

THE usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on February 17th, 1911, Dr. de Havilland-Hall in the chair. The accounts presented showed that the business of the society during the early part of this year has been exceptionally good. The number of new entrants has been greater than in any similar period since the commencement of the society's operations, and although at this season of the year a number of sickness claims considerably in excess of the average is looked for, the experience so far has been even under the average. The annual general meeting of the society will be held in May, and the accounts for 1910, which will then be presented to the members, will show a very successful year's working. The total sum disbursed as sick pay is well under the amount expected and provided for in the tables of contributions, and a large increase has been made in the reserves, which now amount to over £240,000. The society is purely mutual, and its reserves have been produced by economy of management, cautious investments of funds, and careful superintendence of its ever-increasing operations. No agents are employed, and no commission or payment of any kind is allowed for the introduction of new business, yet the rate of management expenses is little more than half what was thought to be necessary and accordingly provided for when the society started in 1884. Prospectuses and all further particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

THE annual dinner of the West London Medico-Chirurgical Society was held on February 22nd at the Hotel Great Central, London. Dr. Phineas Abraham, the President, was in the chair, and a large muster of members and guests were present. The musical programme was excellent; Mr. John Ivimey, whose talents as a pianist and accompanist have secured him a high reputation, was supported by Messrs. J. Davis, Edgar Coyle, Charles Collette, and Stuart Debnam. Mr. McAdam Eccles proposed the toast of "The Imperial Forces." Sir James Porter, K.C.B., Medical Director-General, R.N., in reply, referred to Mr. Haldane's scheme of National defence, and expressed the opinion, much as he disliked the word conscription, that if this scheme did not succeed, it would be necessary to call on each man to serve in the forces. In dealing with the navy, he spoke of the recent statements made in Berlin that the estimates of the Prime Minister and of the First Lord as to the strength of the German fleet and the number of ships laid down were erroneous. Construction would continue, he stated, in both countries, and the building of larger, stronger, and swifter ships by our friends across the North Sea was of course only intended to be for defensive purposes. We, however, must continue to pay our national life insurance premiums year by year cheerfully. The toast of "The West London Medico-Chirurgical Society" was ably proposed by Mr. Charters Symonds. In the course of his remarks, he paid a tribute to the Cavendish Lecturers and to the social side of the society's work. Dr. Abraham returned thanks for the toast, referring in sympathetic terms to the work of the late Mr. Keetley, to whom the society owed its existence. After touching on the scientific work of the society, he congratulated the members on the fact that several of the original members were present at the dinner; out of the total number of 115 original members, 34 were still active, including several of the past presidents. For the kindred societies, Dr. Barry Ball spoke of the amicable relations existing between a number of these and the West London Medico-Chirurgical Society. Mr. Ernest Lane responded, as President of the Harveian Society. The remaining toasts, namely, "The Guests" and "The Chairman," were ably proposed and replied to, Mr. T. Mostyn Pigott, as a lay guest, entertaining the assembly with a charming and witty speech. A graceful compliment was paid to the Honorary Secretary, Dr. Page, by the Chairman in his response.

# Letters, Notes, and Answers.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

## QUERIES.

D. S. HY. asks for references to accessible literature on the present methods of control and prevention of scarlet fever, the defects and the necessary remedies or modifications of these methods.

NORTH asks for suggestions as to the treatment of a case of "burning heat" and pains in the legs and feet, which come on immediately on patient getting into bed at night and prevent all sleep for many hours. Otherwise the patient enjoys good health, though leading a sedentary life, and there is nothing to be seen wrong with the legs except slight swelling occasionally; no varicose veins.

PEDESTRIAN asks for a remedy for tender feet. He has suffered very much of late years even after a short walk. Boric acid and talc, naphthol and spirit, boric ointment, etc., do not give relief, and knitted socks seem to make matters worse. After a long walk the feet are moist, but perspiration is not excessive. He inquires if a preparation of formalin would be useful and safe.

### INHABITED HOUSE DUTY.

A. C. R. inquires whether a house used partly for professional purposes is chargeable at a reduced rate of house duty, and, if not, whether the case would be altered if he were to live away and use the house as a surgery.

*** No relief from house duty is allowed in the circumstances first named; if the surgery were not dwelt in at all, and were not within the curtilage of the house occupied by the practitioner, no house duty would be chargeable.

## ANSWERS.

### GENERAL PSORIASIS.

DR. J. O'DONOVAN (Kingstown) writes: If "Senex" will try 10-minim doses of Donovan's solution in 1 oz. compound decoction of sarsaparilla three times a day for one month, *after food*, he may see some good results.

### TREATMENT OF GLOSSITIS.

DR. H. J. THORP (Ipswich) writes: For the treatment of glossitis I recommend the following mouth wash:

| | | | | | |
|---|---|---|---|---|---|
| ℞ | Mercuric chloride | ... | ... | ... | gr. ij |
| | Ac. hydrochlor. fort. | ... | ... | ... | ♏viij |
| | Glycerine | ... | ... | ... | ʒss |
| | Aquam... | ... | ... | ad | ʒviij |

Fiat garg.

### A NEUROLOGICAL CONUNDRUM.

F. W. M. P. writes: In answer to "Justinian," I should like to suggest that the patient was allowed to get up and move about on crutches, and that the head of his crutch pressed on the musculo-spiral nerve, and caused crutch palsy, one of the symptoms of which is drop wrist.

## LETTERS, NOTES, ETC.

### THYROID EXTRACT IN CARCINOMA.

DR. FRANK B. SKERRETT (Forest Gate, E.) writes: It appears to me that Dr. Hughes Jones, in his article on thyroid cancer in the issue of February 25th, p. 432, is not free from criticism in placing so great a stress on the fact that cancerous tumours sometimes undergo a degenerative change beginning at the centre and spreading towards the periphery, and assuming, as he evidently does, that this shows a definite natural life-cycle for the cancer cell. I may be wrong, but I was always under the impression that this change was not due to an inherent tendency on the part of the cancer cell to degenerate, but that it was simply due primarily to mechanical causes—namely, self-strangulation—cutting off the blood stream, and thereby stopping the nutrient supply to the central cells and the elimination of the products of their metabolism. It is true, probably, that the centrally placed cells are the oldest, but still they are also the furthest removed from a gradually diminishing blood supply, so that it is a point worth settling before any hopes are based upon it.


## SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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